
BULLETIN

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Cover: This Mojave rattlesnake, *Crotalus scutulatus*, was found dead on the road near Portal, Arizona. It had recently swallowed a kangaroo rat, *Dipodomys* sp. Photograph by Stephen L. Barten.

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Hitting the Rattlesnake Jackpot

Stephen L. Barten, D.V.M.
Vernon Hills Animal Hospital
1260 Butterfield Road
Mundelein, IL 60060

Arizona is the rattlesnake capital of the United States, with more native kinds than any other state. It boasts 11 species and 17 subspecies (Lowe et al., 1986) (see Table 1). Not everyone who likes to “round up” rattlesnakes will stoop to gassing their burrows, showing off to naive tourists, and torturing, then butchering the snakes. Some of us respect and appreciate rattlesnakes and the natural areas where they live. Like bird watchers, we like to see different kinds, and to enjoy and photograph them in their native habitats. That is how Gery Herrmann, Mike Dloogatch, Ralph Shepstone and I ended up cruising down Interstate 10 in twin rental Grand Ams, toward the mountains of southeast Arizona last August.

Arizona in August? Friends and relatives doubted our sanity. But we're veteran herpers, although as Ralph pointed out, a little longer in the tooth than we once were. The four of us are tall, and when we last visited Arizona six years ago a local asked if we were a visiting basketball team. Our thinning and graying hair—and I'll let the reader decide who is in which category—precludes any repetition of that mistake, but our experience taught us that August is an excellent time to look for snakes. The monsoon rains of summer bring the snakes to the surface, and the hot summer temperatures are less of a factor at the higher elevations where we would spend most of our time

than they are down in the desert. Also, we now had an ace up our sleeve in Roger Repp, the president of the Tucson Herpetological Society, who had offered to escort us to some productive spots. Anyone who has read Roger's columns in the THS newsletter knows he has a wicked sense of humor, so we looked forward to being entertained whether or not we found any snakes.

Now if you went snake hunting in Arizona, where is the first place you would stop? We drove straight to WalMart. Arizona requires a hunting license to collect snakes, and while none of us was looking to keep anything, we had two cars and planned to hold any interesting specimens temporarily to show the guys in the other car. WalMart sells hunting licenses. But if you ever want to be drilled by a look like you had a third eyeball in the center of your forehead, try asking for assistance in selecting a license for snake hunting. To their credit, the employees at WalMart were very helpful and recommended two three-day out-of-state licenses as the cheapest way to go. We finally acquired the all the necessary paperwork and headed toward the Chiricahua Mountains near the New Mexico border.

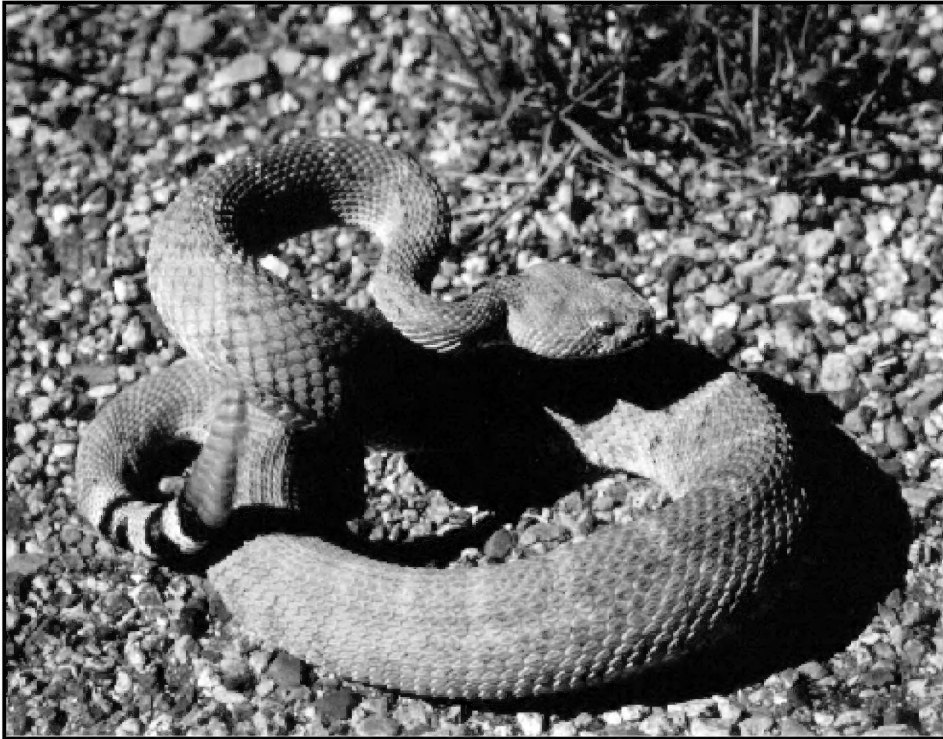
We stayed at a research facility in a comfy cabin with four beds. It was the middle room of a triplex and bona fide researchers were staying on both sides, a fact that would have some bearing on a later event. After a tasty and filling dinner we prepared to head out road cruising. For the uninitiated, this technique involves driving slowly at night through likely habitat, hoping to find snakes as they cross the road. It can be a very successful method depending on the habitat, weather, speed limit, number of cars, and luck. Invariably there are long periods of monotony followed by moments of significant adrenaline rush. The hope is that any snakes seen will be alive, but even those hit by cars provide useful documentation of local populations. As we left, a hooded skunk waddled across the compound, which proved to be another portentous observation. Nevertheless, Gery and I drove off in one direction and Ralph and Mike in another to find the first snake. It rained off and on as we drove, and the lightning show was spectacular. The roads were awash with toads, tarantulas, and walking sticks, but we refused to be distracted from our goal of finding snakes. In some stretches there were so many toads it was impossible to miss them all, and the sound of their popping filled the car like so much squeezed bubble wrap.

Suddenly a white, thick, sinuous object in the road reflected our headlights. I needlessly yelled “STOP!” as Gery had already slammed on the brakes. It was a Mojave rattlesnake, *Crotalus scutulatus*, or “scute” in the vernacular, about two feet long. Mojave rattlesnakes closely resemble western diamondbacks, *Crotalus atrox* (“atrox” for short). Both have a row of diamonds down the back and black and white rings around the tail next to the rattle. They can be told apart by the fact that the white tail rings are twice as wide as the black rings

Table 1. The rattlesnakes of Arizona

* <i>Crotalus atrox</i>	Western diamondback
<i>Crotalus cerastes</i>	Sidewinder
<i>C. c. cerastes</i>	Mojave Desert sidewinder
<i>C. c. cerobombus</i>	Sonoran sidewinder
<i>C. c. laterorepens</i>	Colorado Desert sidewinder
* <i>Crotalus lepidus klauberi</i>	Banded rock rattlesnake
<i>Crotalus mitchelli pyrrhus</i>	Southwestern speckled rattlesnake
* <i>Crotalus molossus molossus</i>	Blacktail rattlesnake
* <i>Crotalus pricei pricei</i>	Twin-spotted rattlesnake
* <i>Crotalus scutulatus</i>	Mojave rattlesnake
* <i>Crotalus tigris</i>	Tiger rattlesnake
<i>Crotalus viridis</i>	Western rattlesnake
* <i>C. v. viridis</i>	Prairie rattlesnake
<i>C. v. abyssus</i>	Grand Canyon rattlesnake
<i>C. v. cerberus</i>	Arizona black rattlesnake
<i>C. v. lutosus</i>	Great Basin rattlesnake
<i>C. v. nuntius</i>	Hopi rattlesnake
* <i>Crotalus willardi willardi</i>	Arizona ridgenose rattlesnake
<i>Sistrurus catenatus edwardsi</i>	Desert massasauga

* species seen on this trip



This western diamondback rattlesnake, *Crotalus atrox*, was crossing a road near Portal, Arizona, one sunny morning at about 8:30. When approached, it was instantly ready to defend itself.

in the scute, while both are about the same size in the atrox. This trait varies and is not always consistent, and a more reliable difference is the presence of two touching scales between the eyes on top of the head in the scute, while the atrox has many small scales between the eyes. An atrox is more likely to aggressively defend itself, but the venom of the scute is up to 20 times more potent than that of the atrox, making it one of the most dangerous snakes in North America. We had seen both species on our previous trip and had already agreed not to bag either for the others to see.

What a country! I saw a trio of sandhill cranes near my house outside of Chicago that morning, and was finding rattlesnakes in Arizona before 8:00 that same night. Between 8:00 and 10:30 P.M. we found another scute, this one a neonate, then a second neonate, and then one more two-footer. Then just three minutes later — what!!?? I slammed on the brakes as we overshot it, thinking “snake!” At the same time it didn't reflect the headlights, and didn't look alive. A dead on road (DOR) snake? And I had the image of stripes. I checked my mental inventory and couldn't think of a striped Arizona snake. Was it a patchnose snake? Wildly backing up, we leaped out to find a yellow rat snake.

Now, the professionals among you may note that yellow rat snakes are not native to Arizona. But this wasn't just any yellow rat snake, it was an old friend. This same individual snake had been “caught” during our various trips to southern Illinois, North Carolina, Oklahoma and even Trinidad and Baja, Mexico. It was made of rubber, was always left where someone else in the party was likely to come across it, and became the responsibility of the finding party to bring on the next trip. Invariably it produced the same reaction it had just produced in us. And now we were finders keepers, but took some pleasure in noting that the jokesters had come perilously close to that last scute as they left us our prize. At last we had a snake in the bag.

We finished the night with a neonate atrox, a DOR neonate atrox and a very nice subadult lyre snake. Ralph and Mike

found an amazingly different array of species that night, all DOR, which they brought to show Gery and me. They had a gopher snake, a Mexican hognose snake and a beautiful desert kingsnake, jet black with a lacy yellow pattern on the sides fading to thin crossbands on the back, giving the impression of a yellowish snake with black dorsal blotches. After we admired them, Ralph left the dead snakes outside on the front porch and we went to bed, falling asleep instantly after our long day of travel and road cruising.

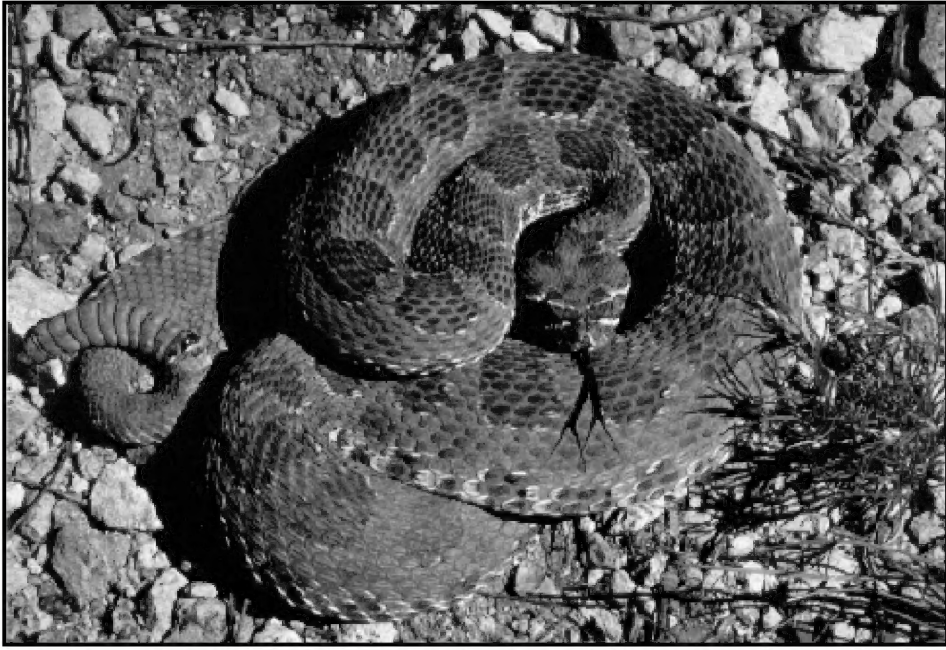
The next thing I knew, I was awakened by a low noise. I had chosen a bed by the window overlooking the front porch, which was open to admit a nice evening breeze. I looked at my watch — 4:00 A.M. — and heard it again, a low rumble, close by. It was followed by more noise: growls and answering hisses, as a distinct musky odor drifted in through the window. I had a bad feeling about this. Flipping on the porch light, I saw two skunks fighting over the dead snakes. There was nothing to do but turn off the light, carefully close the window, and go back to sleep, hoping they wouldn't let fly. We professed ignorance the next morning when the other researchers complained of being kept awake half the night by a skunk fight.

The following night Ralph and I teamed up while Gery and Mike took the other car. We saw more scutes and atrox, all in the two- to three-foot range. We also saw two different pickup trucks driving slowly, obviously containing other herpers. The first followed us, then passed us and slowed down again. Rats! They were going to get all the snakes. See, they're stopping already. We stopped too, seeing the scute that brought them to a halt. The other herpers didn't get out, so we went to look. Scutes were obviously common, but still were a novelty to us. The white tail rings were wide, and I shined my light on the head and saw the two big intraocular scales just before the snake dashed to safety. I told Ralph, “The scales say ‘scute’”. The driver of the truck, a man with a full gray beard and a Tucson Herpetological Society tee shirt, overheard and replied, “You can't see the scales on its head but it IS a scute,” and they raced off.

Maybe he didn't notice that I was wearing my glasses, and maybe he didn't realize that my light, though small, was a scuba light with an intensely bright and focused beam. I'm



Steve and Gery found this Sonoran lyre snake, *Trimorphodon biscutatus lambda*, on the first night of road-hunting.



Gery and Mike found this prairie rattlesnake, *Crotalus v. viridis*, a few miles into New Mexico on the second night of road-hunting.

guessing he assumed we were some yahoo rattlesnake catchers invading his home turf rather than people with more than a little herpetological experience. But I was also guessing Roger could tell us who was in the truck and put in a good word for us, since he is the president of their society. But first things first, Ralph and I decided to show them a thing or two about road cruising. Where was that yellow rat snake? Dang! In the other car! Still, our dander was up so we were ready for the next herping truck.

Ralph and I ended up just north of Douglas, the only place in the state where desert massasaugas, *Sistrurus catenatus edwardsi*, are found, albeit rarely. Ironically, the eastern massasauga, *Sistrurus c. catenatus*, is the only rattlesnake that still has a few healthy populations around Chicago, and we've seen plenty of those. But in Arizona the desert massasauga is one of the rarest and most sought after snakes. We had seen the second slow-moving truck three times—obviously looking for snakes—when it finally pulled up next to us as we were admiring a neonate scute. Ralph had grabbed it in his tongs to make sure it wouldn't get hit as he saw the approaching headlights. The driver leaned out his window and called, “Atrox?” Without missing a beat Ralph answered, “Nope, massasauga. We're from Illinois and these things are like garter snakes to us.” He dropped the snake in the weeds next to the road as the truck driver's eyes popped out of his head like a bad Jim Carey movie. We sped away laughing.

That night Gery and Mike found a prairie rattlesnake, *Crotalus viridis viridis*, our third species of rattlesnake. While not as rare as the massasauga, it was a very good find indeed, as its range barely enters the state in that southeast corner.

These trips aren't only about seeing snakes, in spite of our exclusion of invertebrates and amphibians the first night when we were excited. In remote areas it is not uncommon to see many interesting and beautiful animals. The one frog we did stop for that first night proved to be a huge, fat leopard frog. The front half was bright lime green fading to olive caudally. We admired it and watched it hop away without taking any photographs, to our later regret. A check of our field guide back at the research station identified it as a Chiricahua leopard

frog, and we learned they were thought to be locally extirpated only five years ago. Since then a small population had been discovered, and we accidentally ran across that population that night. Other sights included mammals and birds. Near Barfoot Peak we saw a black bear with twin cubs in the road late the next afternoon. The mother ran up a ridge while the cubs briefly climbed a tree before following her. It was the first time I had ever seen a bear outside of a Wisconsin garbage dump. Road cruising at night on this and the previous trip we were fortunate to see a number of animals either dashing across the road or sitting in the middle of it. Some of the common ones included deer, coyotes, gray fox, jackrabbits, striped and hooded skunks and great horned owls. Occasionally we saw a herd of javelina or peccaries, which are small, hairy, pig-like creatures. There were a few coatis, a southern member of the raccoon family with distinctive, pointed snouts and long, ringed tails which are usually held erect. Once we saw a graceful, cat-like ringtail. With all that, what surprised me the most was a mother raccoon with three babies. I assumed that since common raccoons were so ubiquitous in Illinois, they wouldn't be found in southern Arizona. During the day, we saw many roadrunners along roadside fences and zone-tailed and Swainson's hawks soaring or perched on telephone poles. High in the pine forests of the Chiricahuas we saw red-faced warblers and a host of hummingbirds. Bird watchers come to this part of Arizona from all over the country just to see those and other rare species such as the trogon.

The next day we followed vague directions from a friend to a likely spot for snakes that was new to us. It involved driving down a certain road “to the end.” In retrospect, this was not a smart thing to do. The dirt road stretched some 50 miles from town to the base of the target mountains, after which it climbed at a steep angle, ascending some 4000 feet in elevation over just six miles. Much of the road was at a 45-degree angle or worse, and there were countless speed-bump-like ridges and cantaloupe-sized loose rocks. It was narrow with steep drop-offs and no guard rails. But our game little rental Grand Ams made it to the top, proving that old axiom, any car can be a four by four if it's a rental.

Actually that has been my experience. I drive a sport utility vehicle, as does Mike. In fact, one time in southern Illinois my Ford SUV pulled his Chevy SUV out of a deep mudhole that my Ford SUV had just successfully negotiated. And while I still enjoy gloating over that moment, I have to point out that another friend was following us in a two door, front wheel drive RC (regular car) and had no trouble whatsoever. I learned then, to say nothing of my experiments with several rentals on other herping trips, that any car can be a four by four if you want it to be. What I learned on this trip was that SUVs do offer two advantages: greater ground clearance and skid plates.

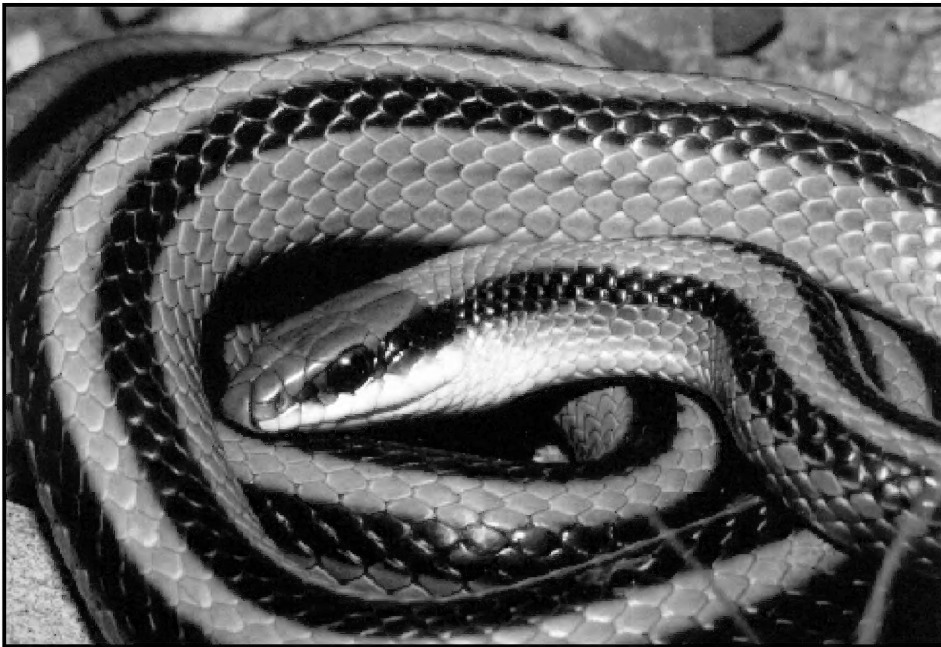
I timed our descent, which took 50 minutes to cover those 4000 feet and six miles, and that was with gravity behind us. When we reached the bottom it was twilight, so Gery and I let Mike and Ralph have a head start road cruising back to town. As we waited I decided to look under the car, which had bounced over some big rocks. I was surprised to see a



An Arizona ridgenose rattlesnake, *Crotalus willardi willardi*, catching the morning rays in the Huachucas.



A brightly patterned neonate ridgenose.



Mike found this mountain patchnose snake, *Salvadora grahamiae*, out in the open, cruising the bank of a dry streambed.



The banded rock rattlesnake, *Crotalus lepidus klauberi*, is not an uncommon find in the mountains of southeast Arizona.



This blacktail rattlesnake, *Crotalus molossus molossus*, was found crossing a mountain road soon after dark.



All snakes instinctively seek out dark, confined hiding places, but this blacktail, shown in the act of exiting, really surprised Gerry and Ralph with its choice of a refuge.

waterfall. It was radiator fluid. Dang.

We limped back to town with a warning light on but miraculously without overheating and found, to our delight, in the middle of nowhere, our old friend WalMart. They were open—it was now dark—and they had radiator fluid and water. The leak was not as bad as we had first thought and the car held up with daily topping off for the rest of the trip.

The next day we met Roger Repp near the Huachuca mountains. Our goal was to see the three small montane rattlesnakes: banded rock, *Crotalus lepidus klauberi*; twin-spotted, *Crotalus p. pricei*; and ridgenose, *Crotalus w. willardi*. These three species, along with the desert massasauga, are protected in Arizona. They are not to be bagged and held for later to show your friends. One admires them where they are found and leaves them alone. On our prior trip we had photographed the first two species, but the ridgenose eluded us. We weren't surprised, having cut our herpetological teeth on Carl Kauffeld (1957). In that book, Kauffeld described visiting Arizona to look for this rare species.

I have had the good fortune to make four visits to the Huachucas in 13 years. Each time has been a delight for which I would gladly forfeit a year of my life, but the events of Sunday, July 20, 1941, could hardly be expected to repeat themselves. On that day Mr. Kauffeld found not one, but two ridgenose rattlers. This was a species only discovered in 1905, and prior to Kauffeld only 12 specimens had been known to science. No wonder our optimism was guarded. And we had an unknown factor: Roger.

He met us at the appointed hour. We came armed with two good deeds: having returned a fallen suitcase on the interstate (one of our cars picked it up while the other flagged down the driver who lost it) and jump-started a stranded camper on the way to the rendezvous. We felt luck was with us. Roger confirmed that conditions were near perfect, between the early start, the cool but rapidly warming temperatures and last night's rain. He covered our heads with opaque black hoods and forced us into the trunk of his car before driving us to an unnamed locale somewhere in the southern third of Arizona. When we were finally released Roger suggested we look along any of the numerous rocky slopes. Ralph and Mike went one way while Gery and I followed Roger in the other direction. We searched while peppering him with questions about where the rattlers were likely to appear and where he had seen them in the past. His answer was simple. "Here's one."

Unbelievable. It was only 9:05 A.M., and I was already looking at a ridgenose rattlesnake. It was 20-inch male, colored rich chocolate brown with subtle light brown crossbands and stunning, stark white flash marks on its face. We admired it at some length, and I had barely started taking pictures when I heard a call, "Here's another one," not 50 feet away. This one was a subadult. We had already matched Kauffeld's memorable day. Roger claimed that rock rattlers were more common than ridgenose rattlers in this spot, and moments later I heard a buzz next to a flat rock and looked down to see one. He claimed my find was ugly compared to specimens from some populations, but it was beautiful to me. The snake had a

gray-green background interrupted by jet black, irregular crossbands and a surprising salmon pink tail. Roger was proving to have significant prognosticating abilities. Shortly thereafter we heard a buzz and saw a brown streak shoot into a tuft of grass. We looked under the edge of the tuft and there was a nicely coiled neonate ridgenose. It was only about six inches long and dull—opaque—with a prebutton for its rattle. We slowly realized that this baby couldn't rattle, and the streak we saw was larger. On closer inspection we spotted a female ridgenose, possibly the baby's mother, in the shadow next to the baby. We had seen four ridgenoses in just 90 minutes!

Roger's spot was remarkable for being undisturbed. I've been to many good herping locations only to find every log and rock recently turned over by some careless herper, with the exposed ground underneath dried and cracked. Invariably no herps are found within those disturbed areas. I watched Roger work during the morning and was impressed by the care he took to replace any disturbed rock or log exactly where it had been. If a pile of rocks was shifted, he carefully rebuilt the pile. The intact appearance of this spot was not an accident and Roger's example was noteworthy. He didn't just enjoy this magical place, he respected it. I admit to using poetic license about being forced to wear hoods—Roger merely asked us help maintain the undisturbed nature of the place by not giving out directions indiscriminately.

We didn't run into Mike and Ralph until almost noon, by which time we had seen one more rock rattler. Their only finds were a single rock rattler and a nice mountain patchnose snake. We took them back to where we had seen the first two ridgenoses and fortunately the subadult was still visible. They admired it, but not as much as if they had found it themselves.

As far as I was concerned the trip was now a success, even better than the last one. But we weren't finished yet. Roger offered to escort us on his Sanctuary Road near Tucson that night. This is a private, gated 12-mile-long road that ascends a prime, rocky mountainside. We would take the two cars up and down the road multiple times. The road was on Reservation land and collecting was forbidden, so Roger suggested that we leave the collecting tools in the trunk. Starting under a sunset so spectacular that if it had been a painting it would look exaggerated, we set out with a 10-minute interval between cars. Roger, having made good on his predictions that morning, was rattlesnake king as far as we were concerned. He passed the time telling Mike and me of the many mountain kings, tiger rattlers, and even the occasional green rat snake that had been seen on this road. True to his prediction for success, it wasn't long before we found a three-foot blacktail rattlesnake, *Crotalus m. molossus*, in the road, our sixth species of rattlesnake on this trip. We admired its rich yellow background and contrasting dark dorsal blotches, and noted how the solid black tail differed from the ringed tails of the scutes and atrox. Roger recorded the mile marker and time and we continued. Driving back down we passed Gery and Ralph, then saw another blacktail. It was at the same mile marker and proved to be the same snake, having left the road as Gery and Ralph passed then returned in time for us to see it again. With all the luck we had enjoyed so far, we expected something truly exceptional that

night. After another pass we were at the top of the mountain with a spectacular view of the mountainside and desert below, when we saw headlights on the road near the bottom. The other car was stopped, and they clearly had found something.

We sped down and found Gery and Ralph crouched around the right front tire, laughing.

“What'd you get?”

“What do you think?”

“I don't know, what did you get?”

“What do you think?” they repeated hysterically.

We got out and saw that they were changing the tire, beside themselves with humor. I thought, “Oh no, not another four-wheeling casualty,” then realized there's nothing funny about a flat tire. Gery gave us a clue. “Why would we be changing a tire that isn't flat?” I hadn't noticed the intact status of the tire, but still had no idea what they were doing.

He shined a light on the tire. Up in the wheel, around the brake, coils of rattlesnake could be seen. They had stopped for a blacktail, but with their hooks and tongs in the trunk had no way to stop it when it put its head into a hole in the wheel and crawled right in. They poked and prodded and even drove forward carefully two revolutions of the tire but nothing would make that snake emerge. So they had to remove the tire. As the last lugnut was carefully loosened, the tire shifted and the snake shot out as if from a cannon, unharmed.

It was a fitting end to a memorable trip for Gery and me. We each have a life and we had to get back to them while Mike

and Ralph stayed two more days. That isn't exactly sour grapes; it's my attempt at rationalizing a decision we came to regret. I'd been home just 24 hours when the phone rang, and it was Ralph calling from Arizona. Oh boy, I thought. You're either in jail or about to rub my nose in a fantastic find. It was the latter.

Ralph was calling to tell me he and Mike had returned to the Huachucas and promptly found a twin-spotted rattler, *Crotalus p.pricei*, at the base of a yucca plant—the seventh species of rattlesnake seen on this trip. After admiring their find, they were taking a canteen break nearby when Mike glanced down and saw a mountain kingsnake crawling out in the open a few feet away. As if that wasn't enough, they returned to the ridgenose rattlesnake spot and found four more, plus five more rock rattlesnakes making a total of eight each—Kauffeld would have been incredulous. Their plan was to cruise the Sanctuary Road with Roger again on their last night. Later I heard what happened—they had seen three more black-tails and finally, near midnight, decided to call it quits. Roger asked to make one more trip up the mountain, and coming down on the last run of the trip, they found a tiger, *Crotalus tigris*, the eighth species of rattlesnake.

On this trip we learned that dead snakes should be properly disposed of, that one should never road cruise without rubber snakes in the car, that rental cars are deficient in ground clearance and skid plates and that a parked car can be a valuable rattlesnake collecting tool. But the most important lesson was simply this—sometimes it's better to be lucky than good. We hit the rattlesnake jackpot, and saw eight of the 11 species found in the state in just one week.

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Bull. Chicago Herp. Soc. 32(12):250-252, 1997

The Rough-neck Monitor Lizard (*Varanus rudicollis*)

Mark K. Bayless
1406 Holly Street
Berkeley, CA 94703

Among the 50 or more species of living monitor lizards (family Varanidae), the rough-neck monitor (*Varanus rudicollis*) is one of the most unusual. This species has been aptly described as resembling “a black knight from the middle ages” (Horn and Petters, 1982).

Natural History

The rough-neck monitor is known to inhabit Myanmar (= Burma), southern Thailand, peninsular Malaysia, the Riau Archipelago, Sumatra, Bangka, Sarawak (Malaysia) and Borneo (Boulenger, 1903; Barbour, 1912; Harrison and Lim, 1957; Duckett, 1986; Humphrey and Bain, 1990; Bennett, 1993, 1995).

There are reports of this species also in Laos and Vietnam (Bennett, 1995) and even in the Celebes (Taylor, 1963), but these locality reports are unconfirmed and require further field studies. I believe the Celebes report was a case of mistaken identity with the water monitor (*V. salvator*).

In 1922 Dr. Edward Taylor (1899-1978) reported in his paper, “. . . the type locality is ‘Philippines,’ the exact locality no longer known. The type specimen was collected by Hugh Cuming (1791-1865), and is in the British Museum (Natural History).” This statement by Dr. Taylor typifies the extent of knowledge we have about this species in the Philippines even today, some 75 years later! Auffenberg (1988) does speculate that this lizard may exist in small populations in the Philippine

Islands, perhaps on Luzon and Samar. Apparently, the entire range of this species requires further study. This lizard was described in 1845 by John E. Gray (1800-1875), who gave it the name *Varanus rudicollis*; the species name is derived from Latin words meaning “rough-neck.”

In the Western world, this lizard has been given several common names: for example, “harlequin monitor” (Harrison and Lim, 1957) and “bird monitor” (Sprackland, 1992). The local Malay name for this lizard is *Biawak Serunai*, which means “flute monitor” (Harrison and Lim, 1957). In Thailand, it is called *Ngu-Hoachang*, or “cobra elephant”; in Borneo, the local name is *Biawak Punggur*, or “rotting tree monitor” (Bennett, 1995). All of these synonyms are quite descriptive.

It appears through scant evidence that the rough-neck monitor's closest relative(s) are the water monitor (*V. salvator*) or perhaps the Dumeril's monitor (*V. dumerilii*) (King and King, 1975).

This lizard is known to inhabit deep jungle and primary forest habitats. A primary forest is an ecosystem that has been untouched by man in any way. Obviously, there is little of this type of habitat remaining anywhere on Planet Earth. Primary forests where rough-neck monitors may be found consist of lowland diptocarp forests that range from sea level to about 750 meters above sea level. There are reports of this lizard being arboreal and also of its being ground-dwelling (Auffenberg, 1988; Bennett, 1995). It seems clear that any captive rough-neck would be more comfortable in an environment closely resembling its native habitat. I always encourage serious herpetoculturists to provide naturalistic cages for any varanid species in captivity.

Like coastal water monitors (*V. salvator*), coastal rough-neck monitors tend to be melanistic; inland forms have been described by Taylor (1963) as being black with bright yellow bands across their back. Recently, adult rough-neck monitors have been seen in the pet trade with a black body, but with bright leaf-green bands, and on others, a black body with light baby-blue bands across their backs. The localities from which these latter two come are unknown. I suspect they come from

the interior of Borneo. Only recently have reptiles been exported from deep within the interior regions of this island.

Diet

In 1900 Dr. Franz Werner (1867-1939) became the first to report on the stomach contents of this species. Werner found insects within the stomach of his Sumatran specimen. It has been speculated that this lizard feeds on social insects (e.g., ants, termites), much like an anteater, by using its tongue to lap up the insects. I have seen video of a Nile monitor (*V. niloticus*) feeding upon ants in just this manner. Stomach contents of preserved museum specimens included microhylid frogs, a spider, a crab and an orthopteran (Losos and Greene, 1988). I have noticed that captive animals readily take cockroaches, and also immature rodents (mice and rats) and birds (chicks).

Size

The maximum length for this species is uncertain. Rough-neck monitors have been recorded reaching 73.2 cm total length from a Thailand specimen, 84 cm total length from a Philippine specimen (Taylor, 1963) and 106 cm total length from a Malaysian specimen (Duckett, 1986). The author had a captive female specimen with a total length of 122 cm. The largest recorded specimen measured 146 cm total length (Harrison and Lim, 1957).

Parasites

Only three nematodes have been recorded from this species: *Raillietascaris varani*, *Abbreviata borneensis* and *Vaucherus vaucherus* (Baker, 1987). Hookworms (*Ancylostoma* sp.) have been found in captive specimens (McGinnity, pers. com.). The author has observed ticks on the DOA female specimen sent to him in February 1994.

Reproduction

Egg deposition has been observed in the months of January, February, March, June, July, August, November and December (Bayless, 1992; McHaffey, pers. com.). In February 1994 this author received a DOA imported female, 112 cm total



The rough-neck monitor, *Varanus rudicollis*. Photograph by Jim McDavid.



Juvenile and subadult *Varanus rudicollis* prefer an arboreal environment. Appropriate branches should be provided in the enclosure. Photograph by Jim McDavid.



The enclosure for a captive rough-neck monitor should provide plenty of foliage for cover. Photograph by Jim McDavid.

length, with 12 eggs within her averaging 55×32 mm. All of the eggs were fertile. Apparently this female was within days, if not hours, of depositing her eggs before she died.

The first recorded reproduction event was in 1981 (Horn and Petters, 1982). This first event involved a 110.5 cm total length female that was imported to Germany, whereupon she deposited 13 eggs. Five of the 13 eggs survived incubation (at

$29 \pm 1^\circ\text{C}$ with 100% humidity). Mr. Dale McGinnity at the Nashville Zoo observed courtship and copulation of his adult group. A clutch of 11 eggs was deposited in February, 1993, and 152 days later, three hatchlings emerged from their eggs. Additional hatchlings have been born from this breeding group at the Nashville Zoo. I recommend you visit the reptile house at the Nashville Zoo and see the animals yourself. Their enclosure is surprisingly simple, and yet is comfortable enough for the animals that they have engaged in reproductive behavior and have borne offspring there for several years now.

Conservation

Approximately 500 live rough-neck monitors have been imported into the U.S. since 1971.

Thailand protects this species from hunting and regulates the skin and live pet trades (Humphrey and Bain, 1990). No other country where this lizard is known protects this species or its habitat.

Acknowledgments

Appreciation is extended to Doug MeHaffey, Dale McGinnity, John Adragna, Ron Allen, East Bay Vivarium staff and Jim McDavid for their help and generosity.

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Ophiophagy by an Arthropod-Eating Snake

Sherman A. Minton¹, Jaime Malo Cisneros² and Brooks M. de Cervantes³

The small, secretive snake, *Conopsis nasus*, locally known as *trompa de puerco*, is endemic to the Mexican plateau and plentiful in some localities including vacant lots in the city of Queretaro. In spite of this, little is known of its natural history. Available information indicates these snakes feed on invertebrates. Stomachs of six wild-caught snakes contained spiders, spider egg sacs and a cricket. In captivity, the snakes readily feed on spiders, crickets and mantids. However, a captive female *C. nasus* 293 mm total length ate two Brahminy blindsnakes, *Ramphotyphlops braminus*, placed in its terrarium. *R. braminus* is often found in the city of Queretaro and has been previously reported (Minton et al., 1975). The blindsnakes had total lengths of 101 and 115 mm. Less than

12 hours later, the *Conopsis* was found dead. The head of one blindsnake and the tail of the other were tightly wedged into its pylorus. Neither had been digested to any degree. Still unanswered is whether this choice of prey was incidental to captivity and whether the death of the *Conopsis* was directly related to ingestion of the *Ramphotyphlops*, an introduced species and presumably an abnormal prey item. Death may have been due to mechanical damage to the digestive tract or to toxicity of some blindsnake secretion. It is generally believed that blindsnakes have chemical defenses that help them live in ant and termite nests, and these may be toxic to some ophidian predators.

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- 1. 4840 E. 77th Street, Indianapolis, IN 46250, USA.
- 2. Corregidora 141-A, Queretaro Centro, Queretaro, Mexico.
- 3. 15 de Mayo 76000, Queretaro, Queretaro, Mexico.

Addendum and Correction to Liner’s Herpetofauna of Terrebonne Parish, Louisiana

Ernest A. Liner
310 Malibou Boulevard
Houma, LA 70364-2598

Liner (1997) gave a summary of the herpetofauna of Terrebonne Parish, Louisiana, and inadvertently left out *Hyla cinerea*, a distinctive part of the amphibian fauna, considered common in the parish. The Atlantic hawksbill, *Eretmochelys imbricata imbricata*, is being added since two unpublished reports in the office of the Louisiana Natural Heritage Program has records from the barrier islands West Timbalier Island and

Wine Island found in 1996 and 1997 respectively. This increases the taxa in the parish to 63: six salamanders, 14 anurans, one crocodilian, 15 turtles, six lizards and 21 snakes.

Thanks are extended to Jeff Boundy for pointing out the omission of the *Hyla* and to Steve Shively of the Louisiana Natural Heritage Program for the *Eretmochelys* records.

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**Book Review: *Snakes: The Evolution of Mystery in Nature* by Harry W. Greene
Photographs by Michael and Patricia Fogden. 1997. xiii + 351 pp. ISBN 0-520-20014-4.
University of California Press, Berkeley and Los Angeles. Clothbound.**

[List price \$45. Available to CHS members from Zoo Book Sales at \$36.00 through January 1998]

James N. Stuart
Museum of Southwestern Biology
University of New Mexico
Albuquerque, NM 87131-1091
E-mail: StuartJN@unm.edu

"Would it seem overmuch to say that no household, no serious library, should lack a copy of this stunning book? I don't think so. Life is short, but snakes are long." (David Quammen, *The New York Times Book Review*, July 6, 1997, p. 6).

I can't recall the last time I saw a book on snakes featured in the *Times* review section. Maybe this is a first. But that is a reflection of what Harry Greene, Curator of Herpetology and Professor of Integrative Biology at the University of California (Berkeley), has achieved in his book, *Snakes: The Evolution of Mystery in Nature*. Providing solid evidence for the non-ophidiophile that snakes are not only tolerable creatures but worthy of admiration and fascination is a monumental task, but I think Dr. Greene has pulled it off.

Snakes is a large, beautifully assembled volume which will not be easily lost on your bookshelf. The colorful dust jacket features striking photos of a Sumatran tree pitviper and a satiny parrotsnake, posed in natural settings. The text, on glossy 8½ × 11 inch pages, is easy to read and neatly partitioned into chapters and subchapters for ease of browsing. The book consists of three major sections. Part One ("Lifestyles") reviews basic natural history of snakes and includes discussions of classification, locomotion, habitats, diet, use of venom, predators, reproduction, and population biology. Part Two ("Diversity") reviews the extant families of snakes worldwide, from the primitive blindsnakes to vipers. Part Three ("Synthesis"), the shortest of the three sections, considers various subjects introduced earlier in the book such as evolution, biogeography, and the role of snakes in a world rapidly being modified by humans. There are numerous special topics inserted into the text as sidelights such as "Deadly Colubrids and Famous Herpetologists," "The Brown Treesnake (*Boiga irregularis*): A Disastrous Vagabond," and "The Coralsnake Mimicry Problem." To avoid cluttering the text with literature citations, the author has included chapter notes at the back of the book which refer the reader to a long list of scientific journal references.

The color photographs, most of which were taken by Michael and Patricia Fogden, are truly amazing and of the quality you more typically find in large-format, introductory books where the accompanying text is of secondary importance. The fact that these photos are incorporated into a book with text of equal quality makes this volume all the more impressive. Although many of the plates are of snakes posed in a natural-looking environment, others are action shots of specimens doing what is so rarely seen (let alone photo-

graphed) in the field: a hog-nosed pitviper giving birth; a plains black-headed snake envenomating a centipede; a terciopelo (fer-de-lance) swallowing a rain frog. Other than a few phylogenetic tree diagrams, there are no figures or other graphics to distract the reader from the photos. My only complaint (a minor one) is the lack of maps which could have illustrated snake distributions more clearly than text alone. But it is my impression that the author was trying to provide a juxtaposition of eye-catching photos and informative (yet entertaining) text which would attract the nonbiologist along with the snake aficionado.

I enjoyed the author's many personal touches, including his diverse sources of inspiration (e.g., Sgt. Jim Chee, Don Henley, Andy Sipowicz) listed in the preface. There is an autobiographical thread which winds its way through the book, and in some places the fine line between author and subject disappears altogether. Greene's recollection of unsuccessfully pursuing a "hot pink" coachwhip in the Mojave Desert, interwoven with musings on life, death and the desert, reveals as much (if not more) about the author's personality as the snake's (pp. 36-37); it is a wonderful piece of writing by any measure. Researchers are expected to put aside emotional biases in their pursuit of hard data and in their technical writing, but something intangible is always lost in this separation. It is inspiring to read the other half of the story that most herpetologists rarely record, even in their field journals; the human side of lifelong research that never makes it into the pages of a technical journal.

But the focus of this book, of course, is snakes. Many of Greene's descriptions of his favorite creatures are truly fitting while at the same time unapologetically anthropomorphic. He characterizes elapids (cobras, coralsnakes and kin) as follows:

[They] seem nervous, rather like ophidian terrorists, as if they were ready and willing to engage us one step further than would a viper. Then there's that word "neurotoxic," chilling at some bone-deep level: they thrash or charge and bite, the toxins flow, and then we have muscle spasms and stop breathing. All these things a person remembers, even if only subconsciously, when a long tan snake rises with its hood spread or dark mouth gaping widely (p. 216).

The author, the very definer of good natural history (Greene, 1993), lives up to his reputation by filling this book with countless bits of information on snake behavior, ecology, life history, etc. Not all of these numerous facts are in the sections where you might think they belong, but thankfully there is a complete index to scientific and common names at the back of the book. Despite its occasional personal insights

and poetic language, this book could be used as a supplemental text in a college herpetology course, its narrow focus on the Suborder Serpentes notwithstanding. It would be a perfect companion to a special topics course on Ophidian Appreciation.

Dr. Greene is to be congratulated for providing a book that herpetologists will use frequently and that many nonbiologists, including those with less-than-favorable opinions about snakes, will also find intriguing. It is a rare event when a publication manages to bridge the gap between specialists and the lay public. This book does so admirably.

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**Book Review: *Living Dragons: A Natural History of the World's Monitor Lizards* by Rodney Steel
1996. Ralph Curtis Books, P.O. Box 349, Sanibel Island, FL 33957-0349.**

160 pp. Color and b&w photos. Hardbound. ISBN 0-88359-040-9.

[List price \$39.50. Available to CHS members from Zoo Book Sales at \$31.60 through January 1998]

**Raymond Hoser
41 Village Avenue
Doncaster, Victoria 3108
Australia
E-mail: adder@lexicon.net.au**

I tell everyone I like death adders (*Acanthophis antarcticus*) more than any other reptile on earth. Well now I'm about to let a secret out of the closet. I cried and cried when forced to relinquish my seven lace monitors (*Varanus varius*) in the early 1980s, when my parents sold the family house. Although the lizards went to a good home, they were truly pets in the real sense of the word—more like dogs and cats than a “reptile.” Some of them were even thought to be older than I was! I'd actually inherited some from another man who'd suffered the same fate as me some years earlier.

School teacher John Baker caught four adult lace monitors at Bingarra, northwest New South Wales, in the 1960s and kept them at his suburban Sydney home until his parents sold it in the mid-1970s. He knew I'd just built a massive goanna pit at my St. Ives house so he gave me his beloved pets to guard with my life. Nearly ten years later I was doing the same thing. This time these lizards were being passed on to herpetologist Ken Sheppherd to guard with his life. If I had my time again, I'd never have let the lizards go, but then again if I had kept them, they would probably have been taken with the rest of my collection, when it was stolen in July 1984.

Although in herpetological circles it is looked down upon to describe a large monitor as “dog tame,” I can think of no better way to describe my lace monitors. In some ways they acted, well, almost human. Anyway, I wasn't the only person who was besotted with monitors. In the late 1980s British publisher Ken Welch approached me to write a book on monitor lizards. He knew there was a market out there for such a product. Contracts were signed and all was set to go, but then I got embroiled in a series of disasters after I exposed corruption in the local police force, since documented in a book called *The Hoser Files—The Fight Against Entrenched Official Corruption*. To cut a long story short, I never got around to

doing the monitor book.

That Ken was correct in his judgment that there was a desperate need for a good monitor book has since been borne out by the increasing number of books published on the subject. Recent general titles include *A Little Book of Monitor Lizards* by Daniel Bennett (1995, over 200 pp.) and *The Natural History of Monitor Lizards* by Harold F. De Lisle (1996, over 200 pp.). Both are of excellent quality and as a reviewer I couldn't help but compare the two books with one another (I will ignore here the more specific titles by Auffenberg and others). Well here I am again looking at another recently released book about my favorite lizards, the monitors.

Living Dragons, by Rodney Steel, is a well packaged book summarizing the world's monitors, the venomous lizards of the USA and Mexico, *Lanthanotus* from Borneo and some “extinct sea dragons.” Steel is a well-known freelance science journalist who has previously published books about sharks and crocodiles. Unlike the books by De Lisle and Bennett, this book is clearly aimed at the more general user as opposed to what I would describe as the “hard core herp.” Having said this, the fact is, that the book will be informative to “hard core herps” as the information tends to be detailed, informative and accurate.

Repeated use of lay terms to describe monitors as “dragons” reinforces the perception that this book is not aimed at the herpetologist intent on identifying things by their proper names. However, in my view that is about the only readily found defect in that regard. The color photos that appear in the book are at scattered intervals and when combined with the black-and-white drawings, diagrams and so on, make the book relatively user-friendly, perhaps more so than the other two titles. The page layout is excellent, in my view superior to

that of Bennett's book and I was impressed with the overall design of the book.

For many species of monitor the publisher has printed black-and-white drawings instead of photos. I wasn't terribly impressed with these as: 1) some didn't seem to have a particularly good likeness to the species being depicted, and 2) in most cases there are plenty of photos available of the same species. Noting that the printing cost of photos would have been the same as for the drawings, I think I'd have preferred to see the photos in their place, although I am sure there are some people who'd prefer to see the drawings (a change is as good as a holiday?)

The first chapter gives an overview of "Varanids—the Real Dragons," including fossil history, modern distribution and related matters. Chapter 2 covers the "Anatomy of a Dragon" in some detail before chapter 3 covers the Komodo dragon (*Varanus komodoensis*). Chapters 4-9 give summaries of the other species of lizard described in the book. This appears to be derived almost entirely from other sources in the published literature, a feature shared with the other authors. Species accounts tend to reflect what is known for each species in that well known species tend to be covered in greatest detail. I see little problem in this. As a rule, species accounts lack sub-heads for aspects like distribution, coloration and so on. This is against the more modern trend towards these and I think I'd have preferred to see these in this book's accounts.

Chapter 10 covers "Extinct Sea Dragons," while chapter 11 completes the account with a brief summary of the past history of "dragons" before giving a brief overview of the conservation status of the group. There is nothing too out of place or radical in this account. The tail end of the book is an appendix, which includes the following:

- Published Scientific Names of Living Varanids
- Selected Bibliography
- Picture Credits
- Index

The section on published scientific names purports to present senior synonyms followed by some (but not all) junior synonyms. A cursory glance at this list revealed some errors, most notably *Varanus panoptes* Storr 1980. *Panoptes* is as of 1997 a junior synonym of *gouldii*. The name "*panoptes*" was used in error by Storr in 1980, but shown to be in error by Böhme in 1991. Storr had renamed the same species (*gouldii*)

and failed to look at the original type specimen of *gouldii* at the British Museum. Another error was the listing of *V. teriae* as a senior synonym, when it is in fact a junior synonym of *V. keithhornei*.

The selected bibliography contains about 100 entries (a crude estimate), which is substantially inferior in quantity to that presented in either De Lisle's or Bennett's books.

Notwithstanding the shortcomings outlined above, I found the book to be well-written and informative and have no doubt that it would be a useful reference to anyone who buys it. Perhaps the key question however is how it rates against its primary competition in terms of price, information, provided and other relevant aspects. I'd like to declare one of the three books (Bennett's, De Lisle's or Steel's) the clear-cut winner, but find myself unable to do so. Each in my view is well written, but at the same time has shortcomings relative to the other books. Of the three books, my personal preference is against Steel's in favor of the other two. In other words if I could only buy one of the three titles, this one wouldn't be it. This is mainly on the basis of detail, of which the other two seem to have more.

In terms of readability and user friendliness, I probably put Steel's book slightly in front of the other two largely on the basis of positioning of the color photos, but a number of my friends prefer De Lisle's in terms of these criteria. Perhaps I should note that Bennett's book has recently been reprinted (in late 1997) in both English and German and my understanding is that it has been substantially upgraded. I haven't yet seen these books, so am unable to comment on them or give a comparison between that book and its "competition."

Before concluding, I should mention that I have (as always) attempted to present this review in as impartial a manner as possible. However it would be remiss of me not to declare any potential or perceived biases others may think I might have. In recent years I have corresponded (briefly) with both Bennett and De Lisle in relation to their books. I haven't had contact with Steel, so I may stand accused of having bias towards the first two. Furthermore De Lisle published some of my photos in his book. However I should also mention that I correspond with hundreds of reptile people annually and similarly have trouble keeping track of the various publications my photos appear in, so I regard neither above point as significant in any material way.

Currently Happening Stuff

reported by Gary Kostka

Windy City Pet Expo:

A handful of CHS members spent the weekend of October 11–12 at the First Annual Windy City Pet Expo held at the McCormick Place North Annex in Chicago. Displaying a variety of reptiles, their mission was to enlighten the show's visitors as to the pleasures, problems and responsibilities involved with keeping herps as pets. Sponsored by Purina, the event's primary focus was on dogs, cats, and the myriad products related to their care. This aspect of the show worked to our advantage in that the CHS booth provided show-goers with an interesting diversion from the nonstop canine and feline activities.

On hand were Ron and Dottie Humbert, sharing their collection of multi-hued corn snakes with the ever changing throng of eager onlookers. It was rewarding to see some of them (after some good-natured coaxing) overcome their apprehensions and tentatively reach out to touch or even hold a snake, perhaps for the first time in their lives.

Lori King-Nava and Char Haguewood shared their knowledge of green iguana husbandry, and informed the public of the trials and tribulations involved in keeping these animals as pets. Pablo, Lori's magnificent male green iguana, was there, serving as a graphic example of just how large these lizards become when they're full grown.

A variety of tortoises roamed about in a Rubbermaid livestock trough, evoking squeals of delight from younger visitors. Perhaps it's the nonthreatening demeanor and plodding gait of the tortoises that makes them so appealing. Maybe it's just because they're usually displayed in a floor enclosure where they can easily be reached. Whatever the reason, the tortoises never failed to captivate the little children that stopped by our booth. Sally Hajek had her hands full, simultaneously monitoring the action at the tortoise pen and answering the numerous questions from both children and adults about the animals.

Gary Fogel displayed several species of Australian velvet geckos, cheerfully fielding the many inquiries regarding their natural history and husbandry requirements. Gary's astute and well-timed observations on human nature helped to keep the mood jovial for those of us working the booth throughout the weekend.

Jim Nesci provided our exhibit's main attraction both Saturday and Sunday in the form of Bubba, his 7-foot American alligator. Clamorous crowds gathered each morning as Bubba was carried to our booth, unbagged and placed atop his display table. An exercise I might add, that required three of us to accomplish. Comments such as "Is that thing real? . . . It can't be real," could be overheard as people passing by our exhibit caught their first glimpse of Bubba

lying motionless atop his table. Hundreds of people stopped by throughout the course of the show, eager for a chance to get close to this impressive animal. Jim expertly managed the excited throngs while simultaneously answering their many questions.

Those wanting a memento of their visit with Bubba could have their picture taken with the affable alligator for a small fee, with all proceeds going to the CHS. Ben Entwisle provided the camera and film for the photo booth, and served as photographer at Saturday's show. Sunday's photographic duties were capably handled by Lori King-Nava and Gary Fogel.

The CHS owes a special debt of gratitude to Jenny Vollman for her contribution to this event as well as the many other shows she has been involved with throughout the past several years. Jenny was on site a day early to set up our booth, worked both days of the show, then stayed late Sunday until everything had been packed away. Serving as CHS show coordinator, she attends to the numerous details involved in our appearances at shows such as this. Her duties include recruitment of member participants, providing each with all the pertinent information regarding the show, securing for each the various parking and exhibitor passes required for show access, and acting as liaison between the CHS and event organizers. Without her tireless efforts, CHS participation in events such as the Windy City Pet Expo would prove difficult if not impossible. Thanks Jen, for a job well done!

Most visitors who dropped by the our booth at the First Annual Windy City Pet Expo were inclined to linger awhile. Their fascination with the animals on display was evident in the questions they asked and the comments they made. Hopefully, those who spent some time at the CHS booth departed with a greater appreciation and understanding of the roles herps play both in nature, and as pets.

Midwest Herpetological Symposium:

The weekend of October 17–19 saw herpers from across the country converging on the Best Western Canterbury Inn in Shakopee, Minnesota, for the 13th Annual Midwest Herpetological Symposium. For those of you who may be unaware, and I'm sure there will be some, Shakopee is a small town located just to the southwest of Minneapolis.

The Minnesota Herpetological Society, founders of the "Midwest" back in 1985, were the hosts of this year's event, this being the third time they have done so. Roughly 240 herp enthusiasts registered to take part in the three days of activities, with more than a few latecomers being turned away because there was simply no room left to accommodate them at the hotel. The attendance figures attest to the diligent

efforts of the MHS in planning and promoting the event, and they are to be commended for a job well done. It should also be mentioned that 75 percent of the proceeds from the symposium are to go directly to herp-related conservation projects.

The weekend's activities began with Vendors' Night, which ran from 6:00 P.M. to 10:00 P.M. on Friday evening. The event featured numerous vendors offering a variety of beautiful captive-bred herps as well as all manner of herp-related products. Open to both symposium registrants and the general public, Vendors' Night was well attended, and the banquet room in which it was held was filled to overflowing for the greater part of the evening.

Following the vendors' sale, symposium registrants seeking food, liquid refreshment and a chance to socialize with fellow herpers adjourned to the hospitality suite. The suite was opened at the conclusion of both Friday's and Saturday's activities and featured pizza in quantities sufficient to feed an army battalion. Members of the hotel's staff (obviously concerned for our well being) arrived each night at 1:00 A.M. to quash the revelry and ensure that we all made our way safely back to our rooms.

Saturday began bright and early with a complimentary breakfast served at the hospitality suite. At 8:00 A.M., we gathered in the hotel's banquet room where we were welcomed to the symposium by the President of the MHS. Then began a series of slide presentations given by nine guest speakers on a variety of herp-related topics, including natural history, husbandry, captive breeding techniques and the effects and treatment of venomous snakebite. Each presentation was 45 minutes long, followed by a short period for Q and A. An hour and a half was allotted for lunch, and short breaks were taken in between presentations, allowing attendees the opportunity to get up and stretch their legs. The final talk wrapped up at about 5:00 P.M.

Saturday evening's activities began with refreshments served by the pool, and a chance to socialize from 6:00 til 7:00 P.M. Then it was back to the banquet room for a delicious buffet dinner, followed by the symposium's keynote speaker, Dr. Peter Pritchard. Author of numerous technical papers, articles and several books on turtles, Dr. Pritchard is considered a leading authority on the subject of chelonians. His fascinating talk, titled "Turtles: Time-tested Architecture, Uncertain Future," dealt with the aspects of turtle morphology that have helped make them such an evolutionary success, but provide them no guarantee against avoiding extirpation at the hand of man.

The applause for Dr. Pritchard had no sooner faded than it was time to commence with the evening's final event, an auction featuring a large and varied assortment of herp-related items. These auctions are typically boisterous, high-spirited events, and this one was no exception. Fueled both by the good-natured cajoling of the MHS auctioneers and copious quantities of lager being served, bidding was vigorous on herp-related items ranging from practical (husbandry supplies and books) to whimsical (hand-crafted art objects and herp

toys).

Sunday's activities featured a series of presentations by four veterinarians well known for their expertise in the field of herps. Dr. Roger Brannian, Dr. John Rossi, Dr. Richard Funk and Dr. Roger Klingenberg shared their considerable knowledge on a number of topics pertaining to the current state of herp medicine. The workshop format of these presentations allowed for spontaneous interaction between audience members and speaker, allowing those in the audience the opportunity to pose questions or contribute their own thoughts to the proceedings.

The 13th Annual Midwest Herpetological Symposium drew to a close on Sunday at 11:30 A.M., the participants now confronted with the challenge of wending their way home and resuming their daily lives. The effort put forth by the Minnesota Herpetological Society in organizing this year's "Midwest" was evident throughout the course of the weekend, and served to make it an entertaining, educational and memorable experience. Here's looking forward to next year's "Midwest", to be hosted by the Hoosier Herpetological Society in Indianapolis, Indiana. Hope to see everyone there.

General Meeting — October 29

Those attending October's general meeting of the CHS were treated to a presentation featuring a mixed bag of herps and arachnids. Local member Tom Anton graciously filled in for canceled speaker Randall Gray, and shared his experiences as a research volunteer taking part in a study of the community ecology of the scorpions found within the boundaries of Big Bend Ranch State Park in Presidio County, Texas. Located on the Mexican border between the towns of Presidio and Lajitas, Big Bend Ranch consists of 264,000 acres of land described by Tom as typical Chihuahuan Desert community.

Scorpions, being entirely nocturnal creatures, were best observed between the hours of 10:00 P.M. and 3:00 A.M. Closer studies of specimens captured during the course of the research team's nighttime fieldwork were conducted during the day in lab facilities located at the ranch compound. This schedule of nightly scorpion observation and periodic daytime labwork still allowed Tom ample time to tour the park's confines, and take some beautiful photographs of the herpetofauna that he encountered in the process.

Daytime treks for Tom often included a visit to a canyon pool. These shaded pools hold their water for most of the year and provide prime habitat for a number of amphibian species, among them the Rio Grande leopard frog, canyon treefrog, red-spotted toad, and both Couch's and plains spadefoot toads. Canyon treefrogs prefer rocky terrain within a hundred yards of the pools, and were found sheltering within the crevices of shaded canyon walls during the heat of the day. They have a waxy coating on their skin which helps them to retain moisture in the harsh desert climate. They also exhibit the curious behavior of lining up in neat rows within their crevice retreats. Tom noted with humor that each frog in a row has a one- or two-inch space requirement, and will

vigorously repel a neighboring frog if it should happen to encroach upon its space.

Another resident of the canyon pool habitat is the western black-necked garter snake. Drawn there by the abundance of frogs, toads, and tadpoles, which are the mainstay of its diet, it was the most commonly encountered species of snake in the park. Tom reported observing as many as four or five at a time hunting their amphibian prey both in and around the pools, completely unperturbed by his presence.

If it rained at the ranch, nightly field studies were put on hold until conditions were dry, as scorpions will not leave their lairs if it is at all wet outside. However, these same damp conditions proved advantageous to Tom in his observations of the amphibian populations found in and around the ranch compound. Red-spotted toads numbering in the hundreds were a common sight as they foraged for insects on the walls and porches of the compound buildings. Couch's spadefoot toads also occurred in large numbers, utilizing a large vernal pool adjacent to the compound as a breeding site. The noise produced by their courtship activities was enough to cause more than a few sleepless nights for Tom. The heaviest rains signaled the emergence of the Great Plains narrowmouth toads from their burrows located at the bases of building walls, woodpiles, and decorative yucca plants within the compound. Less commonly seen, this microhylid exhibited the curious trait of swelling up following a rain, its body distended by retained moisture.

"Big Bend Ranch is lizard rich," noted Tom as he continued his presentation with an overview of the various lizard species which he had encountered there. Spiny lizards were abundant both in natural habitats such as canyon walls, and on the walls of the buildings within the ranch compound. Tom's technique for photographing these speedy lizards entailed plunging them briefly into a bucket of icewater, posing them in a natural setting and taking the shot. The lizard, after warming in the sun for a few moments would then speed off, apparently none the worse for wear.

Other lizard species encountered included the Texas and round-tailed horned lizards, the southwestern earless lizard, and the Big Bend tree lizard. The Texas horned lizard is in decline and is protected within the state, with only a handful of specimens being documented from the Big Bend region. Possible reasons for their decline include fire ant predation, habitat destruction, and collection for the pet trade. Round-tailed horned lizards were found in shaded areas having a sand or fine gravel substrate, located within close proximity of harvester ant mounds. They would periodically dash from cover, make their way over to a column of the ants, pick off a few of the workers, then dash back to cover.

The only lizard encountered by Tom in the course of his nighttime scorpion research was the Texas banded gecko. Larger members of this nocturnal lizard species are known to feed on small to mid-sized scorpions. Smaller members of the species are preyed upon by large scorpions such as the Big Bend desert scorpion, which can attain a length of six inches.

Snakes abound at Big Bend Ranch, a fact borne out by Tom's spectacular slides of the many species he'd encountered during his time there. Most of the snakes in the region are crepuscular or nocturnal, confining their activities to the cooler hours of morning, evening and nighttime in order to avoid the extreme midday temperatures. However, the Central Texas whipsnake proved to be the exception to the norm. This snake's long and slender form is well adapted to resist the heat and desiccating effects of the desert environment, and it can be seen actively pursuing its lizard prey during the very hottest part of the day. Tom eloquently described this snake's hunting technique, likening it to that of a cat stalking its prey, patiently waiting for just the right moment to dash from cover and pounce upon its unwary victim. He also commented on the piercing nature of the whipsnake's eyes, comparing them to those of a bird of prey.

The western diamondback, blacktail, and Mojave rattlesnakes are all found in the park. The western diamondback was the most commonly encountered crotalid, and was often seen crossing park roads between the hours of 7:00 P.M. and 10:00 A.M. The diamondbacks were aggressive by nature, and would coil, rattle, and strike with the least bit of provocation. Blacktails, docile in comparison, were the second most common species encountered. They displayed no threatening behavior and were easily handled with snakehooks, even allowing themselves to be posed for photographs. The least commonly encountered rattlesnake was the Mojave. Probably the most toxic pit viper in North America, the Mojave's venom is a virulent brew of cardiotoxic, hemotoxic, cytotoxic and neurotoxic elements. Less belligerent than the western diamondbacks, Mojave rattlesnakes were still inclined to stand their ground if disturbed.

Other snakes found at Big Bend Ranch and covered in Tom's presentation were: The Western coachwhip—related to the central Texas whipsnake, it is quick, agile, and can attain lengths of 7 feet or more. The ground snake—a small snake of extremely variable color and pattern which feeds primarily on scorpions and spiders. The southwestern black-head snake—a very small fossorial snake, the females of which typically lay only one large egg, thus allocating their reproductive investment into a single, fit offspring as opposed to numerous smaller ones. The bull snake—found on park access roads between sunrise and 10:00 A.M., these snakes were paler than their northern counterparts, perhaps as an adaptation to their desert habitat. The trans-Pecos rat snake—once considered to be extremely rare, this beautiful snake is commonly found at the ranch.

Thanks to Tom Anton for sharing his encounters with the herps of Big Bend Ranch. Unmentioned in this article were the many beautiful slides and detailed descriptions of the scorpions Tom observed while at the ranch. His photographic prowess and keen eye for detail afforded those of us who saw his presentation with an intimate and captivating glimpse into the world of these fascinating creatures.

Thanks for your indulgence. See you next month.

HerPET-POURRI

by Ellin Beltz

Aesop updated

Once upon a time, a beautiful, independent, self-assured princess happened upon a frog in a pond. The frog said to the princess, "I was once a handsome prince until an evil witch put a spell on me. One kiss from you and I will turn back into a prince and then we can marry, move into the castle with my mom where you can prepare my meals, clean my clothes, bear my children and forever feel lucky for doing so." That night, the princess had frog legs for dinner. [from Chris Drew via the Internet]

War of the Bullfrogs

"Food was the main reason the bullfrogs came to [South] Korea in the first place. The government imported them as a meat supplement in 1973 and earlier, when Koreans were still among Asia's poor. The bullfrogs didn't catch on with diners, but they did work their way into the ecosystem. With no natural predators, they began to take over South Korea's lakes and swamps, threatening local snakes, frogs and fish. . . . The Ministry of Environment was put in charge of the bullfrog-extermination program . . . [and is] getting the public to do the dirty work. . . . [A] television documentary . . . opens with tranquil lake side scenes . . . until the music changes to a 'Jaws'-like thumping, and in swim the deadly bullfrogs. The next scene shows in graphic detail how sharp-toothed foreign bullfrogs can swallow up whole Korean snakes . . . [then] gave tips on catching bullfrogs and displayed possible frog by-products, such as frogskin key chains. . . ." [Wall Street Journal, September 10, 1977] Contributor Rob Streit suggested that the captured frogs could be shipped to North Korea to provide protein in a starved land, but added that the northern government "would probably label the gesture an 'amphibious assault.'"

Last chance before they hop away

The Shedd Aquarium "Frogs!" Exhibit will finally hop away on December 31, 1997. So if you haven't yet visited this marvelous show, do take the time to see it. I really enjoyed seeing so many species that otherwise I'd only seen in books. One of the largest species in the display, the "Mountain Chicken" (*Leptodactylus fallax*) actually built a foam nest in an off-exhibit holding area, but even though the male was calling for a while, reproduction didn't occur in their exhibit tank. The Shedd tried making a rainy season and played male calls in an effort to "create a little competition or, at least, some inspiration." [Jim Anderson in *WaterShedd*, September/October 1997] The Shedd gift shop also has lots of neat frog books and frog stuff, but whether this will be restocked after the exhibit is over is anyone's guess!

Bufo acephale or *Bufo cd-romus*?

Researchers in England report successful creation of headless frog embryos. [The Courier, Houma, LA October 19, 1997] While other papers around the world point out that this "technique . . . may lead to the production of headless human clones to grow organs and tissue for transplant," I'd like to suggest something more conservation-oriented. How about using

headless frogs (clones, of course) for education dissections? Can you see the teacher's kit for this project in your mind's eye? It would be enough to send them all to "virtual frogs" which are some of the hottest new CD-ROM educational software products right now. Incidentally, the American Association of Bioethics has doubled its membership in only two years. [The Times-Picayune, October 22, 1997, both from Ernie Liner]

Red-eyed treefrog ornaments?

"A Froggy Christmas," a collection of holiday songs by some of the hottest frog acts including Frog Marley, Ribbit Goulet and Elvis Frogsley was released by Macol Records with a portion of the profits going to nonprofit nature conservation groups. [United Press International, October 8, 1997, from K&W Herp Haven]

Bolitoglossa forgotten?

Researchers at the University of California have found a species of lungless salamander (genus *Hydromantes*) which uses its tongue to capture prey by shooting it out and sticking it to the food item—just like chameleons and frogs. They say that this is the first time a salamander tongue has been observed to function like a projectile in an article in *Science News*. [September 13, 1997, from Mark Witwer]

It's the water

"The Minnesota Pollution Control Agency has found a large number of deformed frogs in Minnesota . . . [and] severely malformed frogs have also been found in other states, southern Canada and in Japan. . . . [Embryo *Xenopus* were raised in water taken from wetland sites in Minnesota which had high deformity rates in local amphibians.] Researchers are now testing the water, hoping to isolate the chemical causing the mutations and to study the health of people living near the affected ponds. . . . A research scientist in water quality for the Minnesota agency . . . recalled some of the first abnormal frogs she saw in 1995. . . . [They had] no back legs and couldn't hop. 'It was those frogs that made me decide I was going to stay with this until we figure this out. They were pathetic.'" [The Times-Picayune, New Orleans, LA October 2, 1997, from Ernie Liner] More detailed data came out a week later in *Science News* [October 11, 1997, from Mark Witwer], especially this chilling quote: "Undiluted pond water from two of the Minnesota sites caused abnormalities in 100 percent of the embryos. . . . Pond sediments, groundwater, and tap water from nearby private wells also affected the embryos' development. . . . Wetland sites [with] . . . 10 percent or more [deformed frogs] have been reported in 54 of Minnesota's 87 counties. In some hot spots . . . 75 percent of the frogs are deformed. . . . Although human embryos are protected from many environmental influences as they develop, the hormonal pathways controlling limb development in frogs and people can be affected by the same agents."

New Year's resolutions

Subscribe to *FROGLOG*, the newsletter of the Declining

Amphibian Populations Task force via www at <<http://acs-info.open.ac.uk/info/newsletters/FROGLOG.html>>. They have paper and electronic versions. Visit the “Snakes of Indiana” at <<http://birch.palni.edu/~drigg/snakes/htm>>, suggested by Jack Schoenfelder. Read the Box Turtle Research and Conservation Newsletter at <<http://bio-www.tamu.edu/users/heather/boxturt.htm>>. Edited by Heather Kalb, it contains summaries of current projects and news reports as well as photo requests and letters. Visit the Oregon Herp Society’s website <http://www.efn.org/~ore_herp> for a neat list of upcoming herp events around the U.S. [Newsletter OHS, September 1997, from John Applegarth] Volunteer for a herpetological atlas project. The West Chester, PA *Daily Local News* reports that almost 400 people have volunteered so far for a Pennsylvania atlas project. Contributor Mark Witwer writes: “This is a great project. I got involved this summer.”

Lost and Found

- A pet desert tortoise escaped from a Montana home and was found three days later trying to cross the road during rush hour traffic in Billings. A California woman recognized the animal as a desert tortoise and rescued it. The newspaper arranged for the reunion of the tortoise and its family. [*Billings Gazette*, August 8, 1997, from Jim and Kathy Bricker]
- A touching story from the caption of an AP photo: “Willy Garrett, 45, holds his pet turtle Wanda after retrieving her Tuesday from the Delta Hotel, which burned Monday night. Garret said Wanda survived because she was in a tank of water. Firefighters said the fire started from a cigarette left smoldering in an armchair.” The picture shows Garrett tenderly offering the turtle’s face to the photographer; the background shows the school gymnasium where all the hotel’s residents are camped out on cots awaiting new homes. [*Daily Gazette*, Little Rock, AR September 13, 1997, from Bill Burnett]
- “Two valuable water pythons stolen from the Port Elizabeth snake park on Monday night were mysteriously returned yesterday . . . wrapped in a bright red pillowcase at the entrance . . . [found] after an anonymous phone call,” according to the *Cape Argus*, May 1, 1997, from K&W Herp Haven.
- Four 6-month-old zoo-raised iguanas were released in Jamaica, the first of their cohort to be restored to their former range. The species was thought to be totally extinct until rediscovered by a local man in 1990. The Kingston Zoo collaborated with the Fort Worth Zoo (Texas) to breed *Cyclura collei*. They found that the offspring don’t require head-starting, but have “all the necessary skills hard wired. . . . [They’re] on their own from the day they’re laid,” according to *Science*, July 11, 1997. [from Eloise Beltz-Decker]
- “Houma Police responded to an intruder call last Wednesday. . . . When the officers arrived, they were unable to handcuff the slither subject . . . a 4-foot boa constrictor, perched atop the toilet in the bathroom. The officers managed to coax the snake into a bag and haul it off to the Terrebonne Parish Animal Shelter.” [*The Courier*, Houma, LA October 15, 1997, from Ernie Liner] Since the animal is not native to

Louisiana, it is presumed to be an escaped pet.

- The owner of a roadside zoo attraction who was a 7-day-wonder when he admitted he fed live puppies to snakes is in the news again, fighting to keep his wildlife license, which was revoked by the Florida Game and Fresh Water Fish Commission. [*Miami Herald*, August 19, 1997, from Alan W. Rigerman]

Love thy neighbor

The City of Coral Springs, Florida, has ordered a man to remove the 5-foot-tall papier-mâché alligator that surrounds his mailbox. Even though neighborhood kids think the gator mailbox is neat, and the mailman hasn’t complained about putting his mitts into the jaws of death on a daily basis, one neighbor did complain about the big green gator—so now it has to go. The city code says that “All mailboxes shall be of a design consistent with the style of the main house. . . .” [*Sentinel*, Orlando, FL, August 24, 1997, from Bill Burnett] I wonder if now the 64-year-old former Chicagoan will make his whole house a big green gator—or just take down the mailbox.

Teen discovers new fossil species

Patrick Stanley, a 16-year-old amateur paleontologist from Oak Grove, Missouri, has found a new-to-science turtle from the Jurassic, about 150 million years ago. His mother said, “When he was 4, he brought home a bunch of bones from the creek.” She got a fossil book and rebuilt his find, which was also a turtle. At 12, he called up Robert Bakker and joined that scientist on a dig in Colorado. He has also found dinosaur bones and teeth in Mexico and South Dakota. The most recent find was excavated in Colorado this July. [*Chesterton Tribune*, September 2, 1997, from Jack Schoenfelder]

Welcome to the El Niño

Last summer Scandinavia sizzled and more than a dozen tropical nights were recorded in Norway. Of course, their idea of tropical is over 68°F! “Danish police warned people to keep and eye on their pet snakes. Humans may get drowsy in the heat, but reptiles get downright excited and want to get out and soak up those rays. Police and fire departments have had to hunt for missing pets—like one viper found sunbathing on a car hood,” according to the *Albuquerque Journal*, August 22, 1997. [from J. N. Stuart]

The letter of the law

A man who moved from Florida to Ohio took his pet tortoise along. Unfortunately for him, it was a protected gopher tortoise and the owner now faces charges. The 69-year-old man said that he felt he was saving the animal’s life by taking it with him, as it faced an uncertain future if left with the house in Jacksonville. [*Bucyrus, OH Telegraph-Forum*, August 19, 1997, from Bill Burnett]

Guns don’t shoot . . .

A gopher tortoise in Florida was taken to veterinarian John Rossi after being found with 21 pellet-gun holes in the upper carapace and 11 in the plastron. Rossi hoped to be able to rehabilitate the animal. [*Orlando Sentinel*, September 24, 1997, from Bill Burnett] Meanwhile in Terrebonne Parish,

Louisiana, a man went to the hospital with “several small gunshot wounds” after an alligator he and his companion thought they had killed started thrashing around in their boat and the other man fired a .410-gauge shotgun. Unfortunately, alligator hide is tough stuff and some pellets deflected off the gator’s back and struck the man in the side and hand. [*Courier*, Houma, LA September 8, 1997, from Ernie Liner]

Sick turtles

There are more and more articles about sea turtles being found with tumors. It started as a trickle, like the deformed frog stories. The numbers of deformed frogs are high, but there are lots of frogs in each pond. All sea turtles are endangered and the sheer number of news stories about different individual sea turtles is astonishing. (1) “Surgery is planned for a young, rare green turtle pulled from Biscayne Bay near Black Point Channel. . . . Discovered by the shrimping crew aboard the Minnie Pearl, . . . [the animal] has tumors from the papilloma virus. . . . Some of the growths around its eyes, shoulder and tail also were tangled with fishing line [which was removed]. . . . Researchers believe the emergence of such cases [of turtle tumors] may be related to environmental stresses. [*Miami Herald*, August 16, 1997, from Alan Rigerman] (2) “Scientists at the University of Florida have noticed a tumor called fibropapilloma reaching epidemic proportions in some habitats. They think the tumor may be related to chemical runoff that poisons the turtles’ environments and damages their immune systems.” [Fort Myers, FL *News Press* October 19, 1997, from Ardis Allen] (3) “[He] first saw a diseased green turtle in Pine Island Sound in 1962. Now, noncancerous tumors that attack sea turtles are a worldwide concern. ‘I’ve seen these things on large green turtles, tumors the size of a football. . . . It’s grotesque.’ It’s also fatal. The tumors suffocate turtles, blind them so they can’t find food or cover the rectum so they can’t excrete. . . . Something weakens the turtles immune systems. They don’t know what. . . . Green sea turtles, loggerhead and olive ridley turtles with tumors have been seen from Brazil to Florida, from Hawaii to Australia, and in Indonesia. [*News-Press*, October 24, 1997, from Ardis Allen]

Range extensions

- *Ophiophagus hannah*, the king cobra, is one of India’s “big four” species of venomous snakes. It is not native to Washington State from whence the following report: “A 39-year-old Everett man was in intensive care at Harborview Medical Center in Seattle today after his pet king cobra bit him twice yesterday. . . . [He] was playing with the 3-foot-long venomous snake at his apartment when he felt the animal bump against him. Unaware that he was bitten, [he] locked the cobra back in its serpentarium. . . . Three hours later . . . [he] called a friend to tell him he was feeling weak, having trouble breathing and slurring his speech. The friend called 911.” He was treated with antivenin and his condition upgraded from critical to serious overnight. Keeping venomous snakes is illegal where he lives, so the animal was confiscated. [*Seattle Times*, September 24 & 26, 1997, from Mike Teller]
- Meanwhile in Philadelphia, a 23-year-old man was bitten by a gaboon viper, which he was keeping along with two rattlesnakes, a canebrake and a diamondback. The Philadelphia

Zoo provided the antivenin for his treatment at the request of the University of Pennsylvania Hospital. As it is illegal to own venomous reptiles in Philadelphia County, the animals were remanded into the custody of Philadelphia Zoo. [UPI, September 6, 1997, from K&W Herp Haven]

Check his tape

Titled “Rattlesnake stops traffic along Lakeshore Drive” is this grammar-gem from the Orlando, FL *Sentinel*: “He discovered a 5.5-foot eastern diamondback rattlesnake that was crossing the road from an adjacent residential construction site. ‘This is the biggest poisonous (sic) snake I have ever seen around here,’ he said. . . . He tried to kill the reptile with a shovel before finishing it off a pellet gun (sic). He measured it up to four inches in diameter with almost one-inch fangs.” [September 8, 1997, from Bill Burnett]

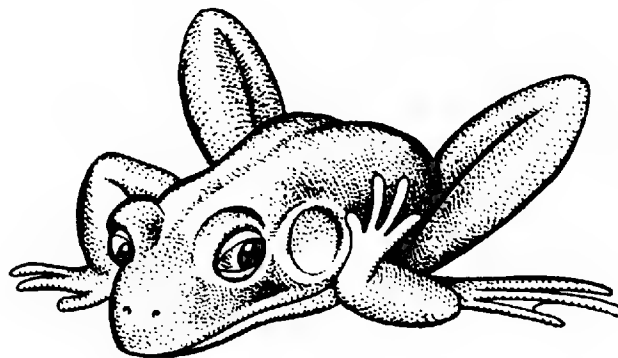
Tis the season to be mailing

For several years now, CHS members have been sending cards and photos at the holidays, which I always enjoy and occasionally try to describe in this column. I especially love the “Kodak” Christmas cards when people take their most fantastic herp photo of the year and put something like “Season’s greetings” in print. The postcard collection grows by the week. The 1997 winner of the funniest post card is from Marty Marks. It shows a “lady lizard” in a frilly maid’s apron and a seated “male lizard” smoking a cigarette, reading a newspaper surrounded by white stuff. The caption is “How many times do I have to tell you. Don’t leave your dead skin on the floor. I’m not a maid you know!!” The best odd-sized, odd-shaped card was contributed by P. L. Beltz. Purchased at St. Patrick’s Cathedral in New York City, the front shows the patron saint (green robe, of course) with staff and mitre, pointing at two green and one brownish orange serpent. The back has the Irish blessing about roads rising to meet you and the winds bein’ always at your back with warm sunshine and soft rains which seems kinda inappropriate for the snakes since they’re buzz off the island. Of course, it’s printed in Italy, so anything’s possible.

Thanks to my contributors, loyal and brand new! Good homes have been found for all the clippings from past columns. Thanks for other neat things received from Ardis Allen, no name on clipping, Mark Witwer, Ray Boldt (thanks for another of your spectacular nature photos!), Bill Burnett, J. N. Stuart, E. A. Zorn, P. L. Beltz, and David Blatchford. You can contribute, too. If you have E-mail, send me a note at <ebeltz@ripco.com>; let’s see how many CHS people are online. To contribute to the column send full pages of newspaper (you’d be surprised how little it weighs) or clippings with date/publication slug firmly taped on. Please put your name on each piece (address labels are really handy here) and send to: Ellin Beltz, 1647 N. Clybourn Avenue, Chicago, IL 60614-5507. I cannot ask you to photocopy material or to send news reports from wire services due to U.S. copyright regulations even though, to many it would seem that these avenues of contribution would be easier. A lot of CHS members take time and effort to bring the rest of us this column and believe me it’s appreciated. I’m hoping for the happiest holidays for all of us, our families, our critters and our friends.

The Tympanum

I enjoyed the last issue of the *Bulletin* and especially Gary Kostka's column, "Currently Happening Stuff." His write-up of Harry's presentation was excellent and it is a service to CHS that Gary takes time to write this column. There were a couple of items that need clarification in regard to the portrayal of our surgical technique with the blacktail rattlesnakes. The incision is made on the lateral aspect of the snake's body, two scale rows above the belly scutes and not on the belly itself. The suture used is absorbable and they are not removed.



Snakes are kept warm overnight and released the following morning, so they are generally at the lab only 24 h. Late in the year when overnight temperatures are low, we have kept several snakes warm in the lab for 7 days and then released them. These are small points, but the readership should know

that we follow the technique of Howard Reinert, which is pretty much the standard for snake surgery.

David L. Hardy, Sr., 585 S. Main Avenue, Tucson AZ 85701-2229, <dhardysr@theriver.com>

Unofficial Minutes of the CHS Board Meeting, November 11, 1997

The meeting was called to order at 7:45 P.M. Board members John Driscoll, Ron Humbert, Ty Park, Jack Schoenfelder and Jenny Vollman were absent.

Officers' Reports

The minutes of the October Board of Directors meeting were read, corrected and accepted.

The Treasurer's Report was reviewed and accepted.

Committee Reports

Shows: Lori King-Nava and Audrey Vanderlinden will do a reptile presentation at the Morton Grove Public Library on January 17, 1998. The CHS will participate at next year's Flower and Garden Show at Navy Pier, March 20-28. Steve Spitzer did a Boy Scout merit badge seminar.

ReptileFest 1998: Gary Fogel has secured a donation of a 13" color TV for the exhibitor raffle.

Old Business

CHS youth auxiliary: There is request in the November *Bulletin* for interested parties to contact Greg Brim or Audrey Vanderlinden. Unfortunately, the telephone number listed for Greg is incorrect. Future action will depend on how much interest is shown.

Survey of lapsed members: Preliminary results were discussed, but not all results are in and nothing has yet been tabulated.

New Business

The CHS has received a letter from David Hardy, Sr., on behalf of the American Society of Ichthyologists and Herpetologists, requesting a contribution to a new scholarship fund they are attempting to endow in honor of the distinguished herpetologist Henry Fitch. Mike Dloogatch moved that the CHS contribute \$100 to the ASIH for the Henry Fitch Scholarship Award. The motion was seconded by Greg Brim. After a

brief discussion the motion was passed unanimously.

We still need a chair for the grants committee. Interested parties should contact Steve Spitzer.

Lori King-Nava distributed a list of the host organizations for future Midwest Herpetological Symposiums. The CHS is scheduled for 2002.

The meeting adjourned at 9:20 P.M.

*Respectfully submitted by the Recording Secretary
Audrey Vanderlinden*

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Herpetology 1997

In this column the editorial staff presents short abstracts of herpetological articles we have found of interest. This is not an attempt to summarize all of the research papers being published; it is an attempt to increase the reader's awareness of what herpetologists have been doing and publishing. The editor assumes full responsibility for any errors or misleading statements.

PARTHENOGENESIS IN BISEXUAL SNAKES

G. W. Schuett et al. [1997, Herpetological Natural History 5(1):1-10] note that parthenogenetic reproduction is phylogenetically widespread in natural populations of invertebrates and vertebrates. Among amniote vertebrates, parthenogenesis is documented in squamate reptiles in multiple lineages of lizards and in one species of typhlopoid snake, *Ramphotyphlops braminus*. In parthenogenetic squamates, the population structure is all-female, and conspecific males are rare or absent. Rarely, bisexual (gonochoristic) female vertebrates undergo partial or complete parthenogenetic reproduction. This report provides evidence that production of embryos and offspring in four gonochoristic species of snakes (*Thamnophis elegans*, *T. marcianus*, *Crotalus horridus* and *C. unicolor*) occurred in captivity by parthenogenesis, a conclusion further supported by the results of minisatellite analyses of nuclear DNA. In two cases where DNA analyses were performed, offspring-dam band-sharing was high (87–100%), no paternal bands were present, and the offspring had 22–52% fewer bands than the dams. Moreover, all offspring that were sexed (probed or by dissection) were males. These results are predicted by the model of automictic facultative parthenogenesis (AFP), a type of parthenogenesis best known in domestic fowl. This is the first study to present reliable evidence for AFP in squamate reptiles. The present findings show that re-examination of published accounts interpreted as exceptional cases of long-term sperm storage in female reptiles is needed. The authors therefore suggest that appropriate caution be used in designing experiments and in interpreting reproductive events that appear to be the result of long-term sperm storage.

A NEW SPECIES OF MEXICAN MUD TURTLE

J. F. Berry et al. [1997, Chel. Conserv. Biol. 2(3):329-337] describe the Jalisco mud turtle, *Kinosternon chimalhuaca* (Cryptodira: Kinosternidae), as a new species from the Río Cihuatlán to the Río San Nicolas basins in Pacific coastal Jalisco and Colima, Mexico. It is a member of the *K. scorpioides* complex, and differs from other *Kinosternon* species in its reduced plastron, narrow bridge, axillary and inguinal scutes always in contact, and narrow first vertebral scute. It occurs in a variety of aquatic habitats, and is an opportunistic feeder. Females reach sexual maturity at a carapace length of 97–107 mm (7–8 yrs), and males at about 100 mm (5–7 yrs). Females collected in early May and late June had maturing ovarian follicles but no oviductal eggs or fresh corpora lutea, suggesting that eggs are laid in July or August. Average clutch size is 3–4. *Kinosternon chimalhuaca* is most closely related to *K. integrum* and *K. oaxacae* based on both phylogenetic and phenetic analyses of morphological characters, and probably represents a derivative of an *integrum*-like ancestor that was isolated along the southwestern Mexican coast.

CRAYFISH PREDATION ON AMPHIBIAN EGGS AND LARVAE

E. Axelsson et al. [1997, Amphibia-Reptilia 18(3):217-228] experimentally evaluated the impact of the introduced signal crayfish (*Pacifastacus leniusculus*) and the native noble crayfish (*Astacus astacus*) on eggs and larvae of seven species of amphibians likely to co-occur with crayfish in southern Sweden. In aquarium experiments eggs and tadpoles of all amphibian species were consumed by both crayfish species. The consumption of amphibian eggs by signal crayfish increased with temperature. The noble crayfish consumed more tadpoles than the signal crayfish, but the latter caused more sublethal damage to tadpoles. Tadpoles of the common toad (*Bufo bufo*) were sometimes killed but left uneaten by both crayfish species. In pool experiments, signal crayfish consumed more tadpoles of *Hyla arborea* in a less complex habitat and significantly reduced survival of *Hyla* tadpoles and the biomass of aquatic macrophytes.

PHYLOGENY OF THE SPINY LIZARDS

J. J. Wiens and T. W. Reeder [1997, Herpetological Monographs 11:1-101] estimated relationships within the phrynosomatid lizard genus *Sceloporus* using parsimony analysis of molecular and morphological data. The data include DNA sequences from the mitochondrial 12S and 16S ribosomal RNA genes (262 informative characters) obtained for 64 ingroup taxa, and morphological characters (202 informative characters describing variation in osteology, squamation, coloration, karyology, and life history) scored for 109 ingroup taxa. The molecular data set includes representatives of all of Smith's species groups as well as the genus *Sator* and the morphological data set includes *Sator* and nearly all the recognized species and distinctive subspecies of *Sceloporus*. The data sets are analyzed separately and in combination, and the single, fully resolved tree from the simultaneous analysis of all the taxa and characters is taken as the best estimate of phylogeny and the basis for a revised classification. The genus *Sator* is nested inside *Sceloporus* (as the sister taxon of the *utiformis* and *siniferus* species groups), and is classified within *Sceloporus* as the *angustus* species group. The traditional division of *Sceloporus* into large-scaled and small-scaled radiations is not supported; the small-scaled species form a graded series of lineages leading up to a clade of mostly large-scaled species, and this clade contains the putatively small-scaled *scalaris* species group. Most of the species groups recognized in Hobart Smith's 1939 monograph are upheld by this study, but the polyphyletic "*spinosus*" species group is dismantled into six monophyletic groups. A general pattern of strong character support for the monophyly of species groups but weak support for the relationships between them occurs in the trees from the molecular, morphological, and combined data sets; this congruent pattern is most likely the result of rapid speciation.

Advertisements

American Federation of Herpetoculturists: A nonprofit national membership organization of herpetoculturists, veterinarians, academicians and zoo personnel involved in the captive husbandry and propagation of amphibians and reptiles. Membership includes highly acclaimed magazine, *The Vivarium*, dedicated to dissemination of information on herpetocultural accomplishments, herp medicine, breeding and maintenance, field studies and adventures, enclosure design and much more. AFH membership is \$26. Send information requests to: AFH-News, P.O. Box 300067, Escondido CA 92030-0067.

For sale: rats and mice—pinkies, fuzzies and adults. Quantity discounts. Please send a SASE for pricelist or call Bill Brant, *THE GOURMET RODENT*, 6115 SW 137th Avenue, Archer FL 32618, (352) 495-9024, E-mail <GrmtRodent@aol.com>.

For sale: murine-pathogen-free rats and mice available in all sizes, live or frozen: pinkies, fuzzies, crawlers, small, medium and large. Frozen crawler mice in lots of 2000, \$.17 each. Also available, full grown hairless mice. FOB shipping point. Master Card accepted. Call (518) 537-2000 between 8:00 A.M. and 5:00 P.M. or write SAS Corporation, 273 Hover Avenue, Germantown NY 12526 for prices and additional information.

For sale: high quality feeder mice. Shipped UPS Next Day Air. All mice are properly processed to insure a quality product. Fourth year of production and supply of frozen feeder mice. Prices: pinks, \$25/100; fuzzies, \$30/100; weanlings, \$35/100. Also available are 4 oz. + rats, \$100/100. Quantity discounts available. The Mouse Factory, P.O. Box 85, Alpine TX 79831, (915) 837-7100, Ray Queen.

For sale: from Bayou Rodents, excellent quality feeder mice and rats. Every size available. Pinks starting at \$20/100. Orders are shipped by overnight service Monday thru Thursday. We accept Visa, MasterCard and Discover. For more info, contact Rhonda or Peggy, (800) 722-6102.

For sale: **high quality frozen feeders**. Over a decade of production and supply. Seven sizes of mice available: small newborn pinks up to jumbo adults. Prices start at \$25 per 100. Feeders are separate in the resealable bag, not frozen together. Low shipping rates. Free price list. Kelly Haller, 4236 SE 25th Street, Topeka KS 66605, (913) 234-3358 evenings and weekends.

For sale: In stock, Flex-watt and Ultra-therm heating products. **Frozen rodents** always available. Mice: pinks–crawlers, 3/\$1; weanlings, 40¢; subadult, 50¢; adults, 65¢; large adults, 75¢. Rats: small, 85¢–\$1; medium, \$1.25–2.00; large, \$2.25–2.75; jumbo, 3/\$10. Call on quantity discounts [note: discount on orders picked up at CHS meetings]. Live rodents available at higher prices. **Available now:** newsletter/catalog—many unique/hard-to-find herp husbandry items. Send business-size SASE for catalog, or call. Scott J. Michaels, D.V.M, Serpent City, P.O. Box 657, Island Lake IL 60042, (815) 363-0290.

For sale: Herp bags—colors vary, translucent ripcord nylon, super lightweight, extremely durable construction with hot corners sewn in, double seamed. Custom sizes made upon request. Sizes: 46" × 14", \$7 each; 24" × 12", \$6 each; 24" × 6", \$5 each. Shipping fees, \$1 for first bag, \$.30 each additional bag. Nicole Lechowicz, 290 Warren Road, #69, Carbondale IL 62901, (618) 457-2783.

For sale: natural history books. *Wildlife in Australia* illustrated by Charles Barrett, no date (probably early 50s), 240 pp., many b&w, some color photos, 40 pp. on pythons, venomous snakes, geckos, dragons, monitors, crocodiles and other reptiles, \$25; *South African Frogs* by Passmore and Carruthers, 1979, 270 pp., many b&w, color photos, includes record with frog calls, DJ, \$50; *Reptiles 'Round the World* by Clifford Pope, 1957, 194 pp., many drawings, ex-lib, but very good condition, \$21; *Rolf's Walkabout* by Serventy and Harris, 1973 (1971), 128 pp., many color photos, the story of a 2-month, 1500-mile nature expedition through the Northern Territory, photos of olive python, thorny devil, and sideneck turtle, plastic boards, \$21. All books hardbound and in excellent condition. Prices postpaid. William R. Turner, 7395 S. Downing Circle W., Littleton, CO 80122 (303) 795-5128.

For sale: two Burmese brown tortoises, 6–7", captive born and raised, sex unknown, \$300 each or \$500 for both. Also, c.b. African spurred tortoises, \$50 each. Will trade for other tortoises. Looking for Egyptian Greeks that were imported several years ago. I need males and also will buy hatchlings from this species. Please help. Bob, (520) 868-4659. [AZ]

For sale: Aldabra tortoises, captive hatched yearlings, approx. 4", gems, inquire; pancake tortoises, inquire; young female Hermann's, \$150 each; 3" female redfoots, \$125 each; one male and one female 7" leopards, \$150 each; one male and two female leopards, male 7", females 11", breeders, \$150–250 each; one male and one female black-headed pythons ('95 male, '97 female), beauties, bright yellow with distinct banding, excellent feeders, inquire; ringed pythons from unrelated clutches, *discount* prices (price depends on number ordered), inquire; young Kenyan sand boas, nice orange/yellow with black, \$35–45 each. Also, one male and one female Bolivian redtail boas (*amarali*), 6½–7', heavy-bodied, proven breeders, \$2000/pair. Dick Goergen, P.O. Box 225, Alden NY 14004, (716) 681-4518 phone, or (716) 681-3544 fax.

For sale: red desert dragons (breeders are Sandfires). We here at Desert Dwellers are currently taking names for our February hatchlings. If you would like to put your name on our waiting list, please E-mail us at <DDwellers@aol.com> or call Dwayne at (630) 325-7624. Each hatchling will start at \$200. Pictures of the breeders can be viewed at our website: <<http://members.aol.com/DDwellers/index.html>>

For sale: **Northern blue-tongue skink babies!** Born 7/97, these youngsters are feeding very well and are from several different bloodlines, \$50 each (that is not a misprint!). Also: two 6-foot proven breeder male **Colombian boas**, beautiful, even-tempered and absolutely mite-free and healthy, \$225 each; adult **Mexican milksnake**, great eater. \$50. Located between Milwaukee and Chicago. Ask for Jim, (414) 654-6303.

For sale: 3-year-old savannah monitor with large custom enclosure, \$400. Iggy, (773) 736-4345.

For sale: **c.b. *Uromastix ornatus***. Healthy, beautiful babies born 8/15/97. Parents are long-term captives raised from juveniles. First generation from females. These lizards are rarely captive bred. \$400 each. Serious inquiries only. See Audrey Vanderlinden at CHS meetings or call (773) 836-2477. Pager (773) 323-3462.

For sale: **c.b. "vittikins" bearded dragons and leopard geckos**, \$30 and \$25. Healthy, well started juveniles and subadults. See Audrey Vanderlinden at CHS meetings or call (773) 836-2477. Pager (773) 323-3462.

For sale: pair of Brazilian rainbow boas (*Epicrates c. cenchria*), '93 c.b. orange male, '94 c.b. light brown female—both are over 6 feet, in excellent health, tame, and feeding very well, Chicago and local (will not ship), \$650 or b.o. for the pair. Also available, three c.b. '97 northern blue-tongue skinks in excellent health, Chicago and local only, \$65 ea. Bob, (708) 636-3286 or E-mail: <RMSacha@aol.com>.

For sale: jungle carpet pythons, c.b. '97, \$175 each; diamond carpet pythons, c.b. '97, \$150 each; Queensland carpet pythons, c.b. '97, \$125 each; *Rhacodactylus auriculatus*, c.b. '97, \$225 each; one male Children's python, c.b. '96, \$150; Macklot's pythons, c.b. '97, \$85 each; fat-tail geckos, c.b. '97, (white lines and heteros), \$35–40 each; Amazon tree boas, c.b. '96, gray phase, \$150/pair; Amazon tree boas, c.b. '97, all colors, \$75–300 each. Steven Bostwick, 3824 Lincoln Pl Drive, Des Moines IA 50312, (515) 274-4580.

For sale: captive-bred snakes and lizards. Species include: leopard geckos, rat snakes, king snakes, milksnakes, pine snakes, African house snakes, spotted pythons, Macklot's Pythons, Colombian boas, Brazilian rainbow boas, and surplus adults as research projects are completed. Feeder mice and rats also available. Call or fax (903) 693-3379 or E-mail <bobball.panola.cc.tx.us> for current prices. R. L. Ball, 226 N. St. Mary Street, Carthage TX 75633.

Advertisements (cont'd)

For sale: one male and one female womas, c.b. 6/97, unrelated bloodlines, beautiful yellow/orange heads, Don Hamper stock, I will finance up to four months, \$5600/pair; two male and two female adult bearded dragons, ready to breed, yellow/orange Sandfire bloodlines, \$250/pair; one male and two female anerythristic Kenyan sand boas, c.b. 8/97, nice black and white, \$225 each; one male Kenyan sand boa, c.b. 5/97, hetero for anerythrism, \$100; one female Guyanan red-tail boa, c.b. 3/97, semi-striped, very clean pattern, excellent color, \$275; one male and one female Baja mountain kings (*Lampropeltis zonata agalma*), c.b. '96, 20-23", bright red and white, eating mice, \$400/pair. Will consider trades for adult green tree pythons, "hypo" Hondurans, aberrant milksnakes or albino western hognose. Call (619) 265-7557 phone/fax.

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For sale: two male and three female brown African house snakes, 2 and 3 years old, group produced 180 eggs in 1997 (so far), all for \$400 firm. Theresa, (517) 372-5730.

For sale: c.b. '95 female Sinaloan milksnake, excellent color, \$65; c.b. '94 female Mexican rosy boa, \$85; c.b. '97 northern blue-tongue skinks, \$65. (708) 361-5835.

For sale: one male South Florida kingsnake ("brooksi"), SPECTACULAR!, beautiful lemon/ light green markings, 3 years old and has never been bred, big and husky, \$125 or trade (looking for red milksnakes, speckled kings, and other Illinois natives); baby corn snakes, normal and snow, c.b. '97, \$10-20, proceeds go towards the Wildlife Education Outreach Program at the Lake Forest Recreation Dept. Rob Carmichael, (847) 615-4388, or E-mail at: <CarmichR@CityLF.LFC.Edu>

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For sale: Send SASE to CRC, P.O. Box 0731, Las Vegas NV 89125-0731 for brochures and list of species available. Limited bookings available for guided tours of herpetological collection sites in Nevada. Call/fax (702) 471-0240. E-mail <fpglwmau@anv.net>.

Internship: The **Kentucky Reptile Zoo**, a nonprofit organization, is seeking student interns for the 1998 spring, summer and fall seasons. The zoo is an educational exhibit, reptile breeding and venom research facility, located near Kentucky's Red River Gorge and Natural Bridge State Park. The intern will assist in the captive maintenance of the zoo's reptile collection, collect admissions to the exhibit, give interpretive talks and interact with the public, assist with educational outreach programs and perform other duties as assigned. In addition, the intern will be responsible for the completion of at least one research project related to the field of herpetology. The intern will **not be involved** in the handling of any venomous reptiles. Desirable qualifications include a willingness to handle snakes and other reptiles on a daily basis, ability to communicate effectively with people, writing skills, orientation to details, and self-motivation. Students majoring in the biological or natural sciences are preferred. Former interns have arranged for academic credit with their colleges or universities. Benefits include experience with the most extensive and diverse collection of snakes in the area, housing and \$55/week to cover expenses. Personal transportation is recommended. Starting dates are flexible, but a minimum commitment of three months covering SPRING (March-May), or SUMMER (June-August), or FALL (September-November) is required. To apply send a cover letter and resumé to: Jim Dykes, Internship Coordinator, Kentucky Reptile Zoo, 1275 Natural Bridge Road, Slade KY 40376. Deadlines for applications are: SPRING, December 1, 1997; SUMMER, March 1, 1998; and FALL, June 1, 1998.

Software: **TRACS™** (the BEST SELLING record keeping and breeding program for IBM and compatibles). Quickly retrieve data such as breeding history, feeding schedules and medical records on each of your animals and use the information to improve your husbandry techniques. Just \$39.95 plus \$5 s&h, \$10 outside the U.S. Download free demo at <<http://www.leaplizard.com>>. Send check, money order or credit card information to Leapin' Lizards, 23852 Pacific Coast Highway, #375, Malibu CA 90265 or call at (310) 456-3266.

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Wanted: big-headed turtles; mata mata turtles; Mexican giant mud turtles (*Staurotypus triporcatus*); exceptionally large common snappers (45 lbs. & up); large alligator snappers (over 90 lbs.); spectacled caiman from Trinidad, Tobago and Surinam; dwarf caiman; smooth-fronted caiman; albino turtles (except red-eared sliders). Walt Loose, (610) 926-6028, 9:00 A.M. – 1:00 P.M. or after 11:30 P.M. Eastern Time.

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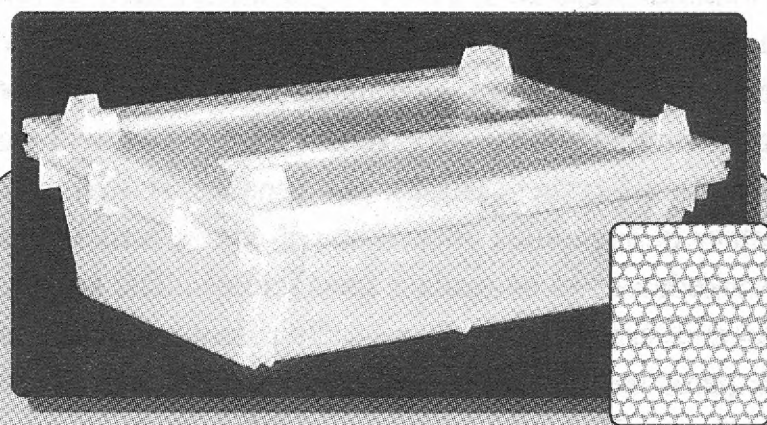
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UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., **Tuesday**, December 30, at the Field Museum of Natural History, Roosevelt Road at Lake Shore Drive, in Chicago. **David Beamer**, a student at Indiana University, will speak on the turtles and other herpetofauna of Newton County, Indiana.

January 28, 1998, will be the first meeting of the new year. **Charles M. Roth** of the Chesterton [Indiana] Feed and Garden Center will speak on "Installation and Care of Ponds, with Emphasis on Indoor Ponds." **Ron Humbert** or **Jim Nesci** or both will follow up with a short program on "Reptiles and Amphibians in Ponds."

We are required to use the entrance on the west side of the museum. **We are allowed to use the free parking lot to the west of the museum as long as space is available. Your best bet is to try that lot first before settling for the lot to the east of the museum or for the Soldier Field lot. For the latest on the parking situation call our CHS message line, (773) 281-1800, before you come.** Public transportation is an option: the Roosevelt Road (12th Street) bus now goes directly to the museum, thus providing a connection with the el and subway. This bus service runs until 11 P.M.

Turtle Club

The Chicago Turtle Club will meet Sunday, December 28, 1:00–3:30 P.M., at the North Park Village Administration Building, 5801 N. Pulaski, in Chicago.

ELECTION OUTCOME

As a result of the elections held November 26, 1997, the following officers and members-at-large will serve on the 1998 CHS Board of Directors.

President:	Steve Spitzer	Membership Secretary:	Gino Martinez
Vice-president:	Jack Schoenfelder	Sergeant-at-arms:	Ron Humbert
Treasurer:	Gary Fogel	Members-at-large:	Karen Bielski
Recording Secretary:	Jennifer Picciola		John Driscoll
Corresponding Secretary:	Lori King-Nava		Audrey Vanderlinden
Publications Secretary:	Mike Dloogatch		Jenny Vollman

AWARDS PRESENTATION

Each year the Chicago Herpetological Society bestows awards upon a few select members in recognition of their service to the organization. At the November 26 meeting two awards were presented. **Lori King-Nava** received the CHS Merit Award. This honor is given each year to one or more individuals selected by the Awards Committee for outstanding service. **Jenny Vollman** received the Presidential Service Award, presented each year to a person selected by the president as having been particularly helpful to the president or to the CHS Board.

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